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IMPACT OF AGRICULTURAL EXPORTS ON ECONOMIC GROWTH OF PERU: THE CASE OF AVOCADO AND GRAPES

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ABSTRACT

Agriculture sector in Peru contributes to 7.7% of Gross Domestic Product (GDP), accounts for 15% of the total export earnings and employs 25% of the labor force. Agriculture products such as grapes and avocados have seen notable export successes in the recent years compared to the country's traditional exports such as sugar and coffee. Despite, research on the relationship between agriculture exports and economic growth wasn't given serious attention until recently. This study seeks to analyze and quantify the impact of the selected agricultural products' exports on the Peruvian economic growth using an annual time series data from 1998 to 2016 obtained from Central Bank of Peru and International Trade Centre. Grape exports, avocado exports, agriculture growth rate, real exchange rate and price consumer index for each year of the stipulated period were used as determinant factors of the economic growth. Ordinary Least Square regression, Augmented Dickey Fuller test, the Phillip Perron test and the Granger Causality test were employed for data analysis. The findings revealed that while agriculture growth rate and the avocado exports have a positive impact on the real GDP, the grape exports and CPI have a negative impact. ADF and PP tests showed that, with the exception of the real exchange rate, all determinants achieved stationary at level I (0). Moreover, there was a unidirectional causality in the relation between the agriculture growth rate and the real GDP, and between grape and avocado exports and agriculture growth. The study recommends policy options including value addition, the incentive for private investment, and an improvement of the traditional agricultural production techniques for a proper diversification of Peruvian economy in the years following.

KEY WORDS

Peru, economic growth, agriculture, Augmented Dickey Fuller Test, Phillip Perron Test, Granger Causality.

As a consequence of the globalization in Latin America, international trades became important for the development of those economies in a long-term, which should include the promotion of generic strategies against the hyper-competitiveness that could appear during the development process of them (Porter, 1990; Porter, 1980), which can affect the sustainable development of Latin American countries (De Soto, 1994; Boloña, 2000; Hernández, 2002). As a result, those issues became in debates over the relationship between the exportation and the economic growth in economies as a general study. Some studies are based in the hypothesis of Export-Led Growth in developing countries, which generates foreign exchange that allow them to participate in the international trades for the

capacity generation to import and to export (Chenery and Strout, 1966; Michaely, 1977; Balassa, 1978; Tyler, 1981; Kavoussi, 1984; Ram, 1985; Shirazi and Manap, 2005; Kang, 2015). According to Kónya (2014), there's empirical evidence that confirms exports are essential in the stimulation of a sustainable and economic growth in countries that are poised to develop, showing that exports Granger cause economic the growth in many OECD countries such as Iceland, Sweden, Canada, Japan and Korea. However, the results show that Export doesn't Granger cause-growth in Luxembourg and the Netherlands. But, those studies were made without the inclusion of subsector such as agriculture to find a possible causal relationship with the economic growth, which it's necessary to determine following the international vision that agricultural exports have more importance for the economic growth in developing countries (Verter and Bečvářová, 2014; Verter, 2015, Verter and Bečvářová, 2016). It was demonstrated that the agricultural exports affects positively to the balanced growth if trade restrictions and distortions (related to the trade in primary goods) are reduced (Anderson and Martin, 2005; McCally and Nash, 2007; Laborde and Martin, 2012; Verter, 2015).

Dawson (2005) examined empirically the agricultural exports contribution to the economic growth in underdeveloped countries. The results showed significant structural differences in economic growth between low, middle, and upper-income countries. Other studies showed the same relation between agricultural exports and the economy growth, which had an increase in the real GDP during the studied years 1980 – 2014 (Uremadu and Onyele, 2016). This conclusion was forced in the study made for Nigeria, using the OLS regression and the Granger causality test, which proved that agricultural exports-led economic growth (Ushahemba, 2015; Verter and Bečvářová, 2016). There're recently studies about the long-term relationship between the agricultural sector output and the economic growth through a Co-integration test, a Vector Error Correction Model and Granger causality test, which demonstrated the significant contribution and causality between those variables (Eze 2017; Simasiku and Sheefeni, 2017). Another research, made in Jalapa, showed that the agriculture production benefits to the local population having low income for the lack of technology's existence in the production (Lanuza, 2015), showing another important relationship between the high production and income levels with the technology existence.

In Peru, in the same study line, Cisneros (2014) also confirmed the connection between the GDP in Peru with the agricultural sector, and between the agricultural sector with the no traditional exports using the correlation method and finding a favorable relationship between them and the positive impact in the economic growth. The same conclusion was made for Fung et al. (2014), who found the importance of the agricultural sector in the economic growth and in the development of Peru, with the inclusion of local communities under poverty situation. They also showed the lack of technology in the production for the international market even when there was an increase in the exportation of non-traditional products, which produced an increase in the agricultural sector (Garcia-Vega 2011).

However, the domain lands for agriculture and forest activities in Peru represents the 77% of the total (FAO 2017), notwithstanding, Peruvian agricultural sector represents only the 7% in the GDP growth meanwhile the mining sector represented the 16% in the GDP growth, having as main characteristic the exportation of mining products in a raw presentation (OIT 2014, BCP 2016), being vulnerable to the global mining price shocks. Additionally, agriculture activity is the main activity for rural areas, which is important for the survival of local citizens, who have as characteristic the asymmetry in the income with other sectors (FAO). As a negative consequence, there're social problems for the extraction and the destruction of natural areas in a country that is considered as the second country, besides Brazil, with the largest forest areas in Latin America (Ministry of Agriculture 2017). The importance of the agriculture activity in the economy came from the increase in the economic stability due to the process of the diversification of primary activities (Haggblade 2010).

For Peru, the economic diversification is necessary and inevitable, which should have an impact on the products exportation by the promotion and stimulation of other sectors

different to the mining. Does the global trade in agricultural sector support the hypothesis that export-led economic growth in Peru through the exportation of grapes and avocado? Empirical results have remained inconclusive in both agricultural products. Thus, the relevance of the current study. The principal objectives are to determine if there's an agricultural export-led economic growth in Peru; and if there's a grape and avocado exports-led agriculture sector growth in Peru.

MATERIALS AND METHODS OF RESEARCH

Research design. This research is fundamentally analytical and descriptive as it embraces the use of secondary data to determine the effect of agricultural exports on the economic growth in Peru. For the analytical test, it's used as a tool econometrical tests related to modeling the annual time series data; and for the descriptive area, it's used the regression model as a tool.

Kinds and sources. For the current research, it was needed an annual time series data that covered the period between 1998 – 2016 including, data on Gross Domestic Product (GDP) growth rate, data on the agriculture sector growth rate, data on the Real Exchange Rate, data on the Consumer Price Index, data on the grape exports and data on the avocado exports. The data for this research was obtained, as it was mentioned from secondary resources, especially from the Peruvian Central Bank of Reserve (PCBR), PCBR Annual Reports, from the National Bureau of Statistics, from the World Bank Indicators, from TRADEMAP and from UNComtrade.

Model specification. The current research used the technique of Simasiku and Sheefeni (2017); Eze (2017) and Ojo et al. (2014). Particularly, it used co-integration and causality approaches. The following econometric model is specified in the eq. (1):

$$RGDP = f(RTAV, GRX, AVX, RER, CPI) \quad (1)$$

In order to discard the differences in the measurement units, it is applied the natural logarithm on both sides of the eq. (1), having as objective the minimization of the gap between the dependent and independent variables, which will result in the eq. (2).

$$LRGDP_t = \beta_0 + \beta_1 LRTAV_t + \beta_2 LGRX_t + \beta_3 LAVX_t + \beta_4 LRER_t + \beta_5 LCPI_t + e_t \quad (2)$$

Where:

LRGDP = Natural logarithm of the Real Gross Domestic Product;

LRTAV = Natural logarithm of the agriculture sector growth rate;

LGRX = Natural logarithm of grape exports;

LAVX = Natural logarithm of avocado exports;

LRER = Natural logarithm of real exchange rate;

LCPI = Natural logarithm of consumer price index;

e_t = Error term;

β_0 = Constant term;

$\beta_1 - \beta_5$ = Parameters of explanatory variables estimated in the model.

Estimation Procedures. The Ordinary Least Squares (OLS) methodology, in the case of time series data, requires the Test of Unit Root to avoid any problem of spurious regression. Following this statement, and to support the model there'll be necessary the following tests.

Unit Root Test. It shows the stationary of the data, which is fulfilled when the mean, the variance and auto-covariance are constants at any point. And, contrary to the stationary time series, a non-stationary time series might be stationary after differencing a number of times successively, the number of times that is needed differencing to become as a stationary is known as an order of integration I_n . In this paper, the determination of the stationary data was done using the Augmented Dicky Fuller (ADF) Test, and it'll be enforced for the Phillip Perron (PP) Test. In the case of the ADF test, it relies on the acceptance of the alternative

hypotheses against the null hypotheses (non-stationary). When the statistic is greater than the critical value or when the probability is less than the 5%, the alternative hypotheses will be accepted. The presentation of the Augmented Dickey-Fuller (ADF) test is presented as:

$$\Delta Y_t = \alpha_0 + \alpha_1 * Y_{t-1} + \sum \alpha * \Delta Y_t + e_t; \text{ it includes only the drift} \quad (3)$$

$$\Delta Y_t = \alpha_0 + \alpha_1 * Y_{t-1} + \sum \alpha * \Delta Y_t + \delta_t + e_t; \text{ it includes the drift and linear time trend} \quad (4)$$

Where:

Y = time series of specified variable;

t = time trend;

Δ = first differencing operator $\Delta Y_{t-1} = Y_t - Y_{t-1}$;

α_0 = constant term;

N = optimum lags' number;

e_t = random error term.

Pairwise Granger Causality Test. To support the paper and to examine the significant causality, it's necessary to determine the significance of the agriculture, the grape exports and the avocado exports as a cause of economic growth in Peru performing the Granger Causality Test (which was developed in 1969). According to Kónia (2004), the independent variable is considered as a Granger-cause variable of Y, if the y_t (the variable Y in the current period) is conditional on the past values of the variable X ($X_{t-1}, X_{t-2}, X_{t-1} \dots X_0$).

Focusing on the total agriculture growth rate, the total grape exports and the total avocado exports as the engines of the economic growth, we are interested in the bidirectional causal relation between them to provide evidence of those independent variables as causes of the economic growth between 1998 and 2016. Therefore, we considered the following Hypotheses:

For the case of LRGDP (Logarithm Real Gross Domestic Product) and LRTAV (Logarithm Agriculture Sector growth rate):

- i. LRTAV does not Granger Cause LRGDP
- ii. LRGDP does not Granger Cause LRTAV

For the case of LRTAV (Logarithm Agriculture Sector growth rate) and the LGRX (Logarithm total grape exports):

- i. LGRX does not Granger Cause LRTAV
- ii. LRTAV does not Granger Cause LGRX

For the case of LRTAV (Logarithm Agriculture Sector growth rate) and the LAVX (Logarithm total avocado exports):

- i. LAVX does not Granger Cause LRTAV
- ii. LRTAV does not Granger Cause LAVX

RESULTS AND DISCUSSION

Empirical results. Before the comprehensive econometric analysis, it's necessary a brief interpretation of statistical analysis. The definitions and summary of the statistics of those variables are provided in Table 1, which reports that the average of the real GDP growth is 4.62% with 2.82 as standard deviation. In the case of the average of the real agriculture sector growth is 3.80%. The mean value of the total grape exports is 195.65 million dollars and the mean value of the total avocado exports is 98.02 million dollars.

For the measure and the direction of skew (which gives the measure of departure from symmetry), it's analyzed the Skewness. The RGDP presents an approximately symmetric

distribution; while the GRX and the AVX show a highly skewed distribution, finally the RTAV shows a moderately skewed distribution.

Table 1 – Summary Statistics of variable, from 1998-2016

Variables	Mean	Median	Max	Min	Std. Dev.	Skewness	Kurtosis
RGDP	4.626801	4.958278	9.143148	-0.3917103	2.824392	-0.1050065	1.980148
RTAV	3.796842	3.398206	11.148	-0.7872999	3.157738	0.6618568	2.952772
GRX	195.6563	60.49	690.81	1.33	243.2632	1.067499	2.613723
AVX	98.02579	46.81	396.58	0.01	120.0345	1.279573	3.439802
RER	98.42237	98.20084	105.703	91.07	4.307464	0.200596	2.080663
CPI	3.076842	3.25	7.25	0.19	1.569352	0.8495568	4.290879

Source: Researcher's compilation from Stata 13.0

The result of the regression eq. (2) is shown in Table 2. It indicates that this function best fit the model with significant effects on the RGDP, having 82% as the R^2 and 73.7% as the adjusted R^2 . This result implies that independent variables explained the 73.3% of the total variation in the RGDP. The F-statistic is 0.0015 that indicates the significance, which implies that the parameters are significant at 5% even at 1%. The CONSTANT with a negative and significant coefficient showed that if all independent variables are constant, the RGDP decreases by 39.31%.

Table 2 – Regression results

Variable	Coefficient	t-Statistic	P-value
LRTAV	0.755494	4.620	0.001
LGRX	-1.800219	-3.700	0.004
LAVX	1.806273	4.450	0.001
LRER	9.024540	2.100	0.063
LCPI	-0.415915	-3.450	0.006
CONSTANT	-39.309940	-2.050	0.067
R-squared	0.824600		
Adjusted R-squared	0.736900		
Prob (F-statistics)	0.001500		
Durbin-Watson stat	2.565533		

Source: Researcher's compilation from Stata 13.0

So, the equation for the model defined in the eq. (2) is given as:

$$LRGDP_t = -39.31 + 0.76LRTAV_t - 1.8LGRX_t + 1.8LAVX_t + 9.02LRER_t - 0.46LCPI_t + e_t \quad (5)$$

According to this equation, the increase in 1% of the Agriculture Sector growth rate (LRTAV) will lead to an increase of 0.76% in the real gross domestic product (LRGDP). It also shows that the agriculture sector growth rate had a positive impact on the dependent variable (LRGDP) at 5% level, but it's not significant as it supposed to be for Peru.

In the case of the grape exports (LGRX), it doesn't have a positive impact on the economic growth in Peru. It has a negative coefficient that means a reduction in 1.8% of the real economic growth (LRGP) when there is an increase of 1% in the total grape exports (LGRX).

And, in the case of the total avocado exports, it has a positive and significant impact on the economic growth in Peru. It showed that an increase of 1% in the total avocado exports (LAVX) implies an increase of 1.8% in the real economic growth (LRGP), with a significance of 5%.

About the control variables such as the real exchange rate (LRER) has a positive and significant impact on the economic growth in Peru at significance level 10%. It implied that an increase of 1% of the real exchange rate should produce an increase of 9.02% in the real gross domestic product (LRGDP). According to Kwanashie et al. (1998), the volatility of this variable had an expected positive impact on the agricultural exports.

Finally, about the inflation rate in this study is taking into consideration the Price Consumer Index (PCI), which had a negative impact on the economic growth in Peru. When the CPI increases in 1%, it implies a decrease of 0.42% of the real gross economic growth (LRGDP). It can be explained by the deterioration of the agriculture production and the economic performance in the country that should be caused by the unfavorable domestic prices in the national production (Uremadu and Onyele, 2016). This result is also supported by the researches of Ghosh and Phillips (1998), Christoffersen and Doyle (1998), Khan and Senhadji (2001), Ghosh 2000, Gokal and Hanif (2004) and Noula et al. (2013).

Unit root test results. There were used two different tests, the Augmented Dickey-Fuller and Phillips-Peron test, which were performed on all variables (real gross domestic product, agriculture sector growth rate, total grape exports, total avocado exports, real exchange rate and consumer price index).

The results of Augmented Dickey-Fuller test and Phillip-Peron test for showing the existence of unit root of once differenced data are represented in Table 3 and Table 4 respectively.

Table 3 – Unit root test for order of integration of variables (ADF)

Variables	At Level	First difference	Critical values (%)			Probability	Order of Integration
			1	5	10		
LRGDP	-3.867		-3.750	-3.000	-2.630	0.0023	I(0)
LRTAV	-8.350		-3.750	-3.000	-2.630	0.0000	I(0)
LGRX	-3.762		-3.750	-3.000	-2.630	0.0033	I(0)
LAVX	-5.948		-3.750	-3.000	-2.630	0.0000	I(0)
LRER		-5.170	-4.380	-3.600	-3.240	0.0001	I(1)
LCPI	-3.723		-3.750	-3.000	-2.630	0.0038	I(0)

Source: Researcher's compilation from Stata 13.0

Table 4 – Phillip Perron unit root test for trend and intercept (PP)

Variables	At Level	First difference	Critical values (%)			Probability	Order of Integration
			1	5	10		
LRGDP	-3.867		-3.750	-3.000	-2.630	0.0023	I(0)
LRTAV	-8.350		-3.750	-3.000	-2.630	0.0000	I(0)
LGRX	-3.762		-3.750	-3.000	-2.630	0.0033	I(0)
LAVX	-5.399		-3.750	-3.000	-2.630	0.0000	I(0)
LRER		-3.588	-4.380	-3.600	-3.240	0.0309	I(1)
LCPI	-3.717		-3.750	-3.000	-2.630	0.0039	I(0)

Source: Researcher's compilation from Stata 13.0

Table 5 – Pairwise Granger Causality Test

Null hypothesis	F-statistic	Prob.
LRTAV does not Granger Cause LRGDP	0.93142	0.3573
LRGDP does not Granger Cause LRTAV	0.10423	0.7535
LRAGDP does not Granger Cause LAVX	1.7901	0.2079
LAVX does not Granger Cause LRAGDP	19.75	0.0010
LRAGDP does not Granger Cause LGRX	2.8776	0.1179
LGRX does not Granger Cause LRAGDP	3.7592	0.0786

Source: Researcher's compilation from Stata 13.0

The result reported in Table 3 confirmed the stationary test of the variables at the level form I (0) for all variables except for the LRER, which showed stationary at the level form I (1). According to this, the null hypothesis of non-stationary can be rejected at 1%, 5% and 10% critical value level confirming that the ADF test statistics was greater than the critical value, which also could be understood as the P-value was significant at the level form I (0) because it's less than 0.05. Since the null hypothesis was rejected for all the variables at a convenient significant level, the variables didn't have a unit root at levels. Therefore, we could conclude that the variables data were stationary at level.

The results reported in Table 4 showed a result from the Phillip-Perron (PP) test, which showed a similar result than the Augmented Dickey-Fuller (ADF) test. All variables presented a stationary at the level I (0), except in the case of the Real Exchange Rate (LRER) that presented a stationary at the level I (1).

In both tests, the results of the variables data were significant at 1% level of significance, excepting the case of LRER, which was significant at 5% level of significance. Those stationary tests supported the econometric model of the eq. (5).

Granger Causality test results. In this case, there was analyzed the causal relationship between the LRTAV (Logarithm Agriculture Sector growth rate) and the LRGDP (Logarithm Real Gross Domestic Product); the causal relationship between the LAVX (Logarithm total avocado exports) and the LRTAV (Logarithm Agriculture Sector growth rate); and the causal relationship between the LGRX (Logarithm total grape exports) and the LRTAV (Logarithm Agriculture Sector growth rate) with the application of Granger (1969) Causality test. The Table 5 showed that it's rejected the second null hypothesis in the first case and the first null hypothesis in the two last cases, giving evidence and support of the unidirectional causal relationship between those variables. There's a relationship between the grape exports with the agriculture growth rate, between the avocado exports with the agriculture growth rate; and between the agriculture growth rates with the real gross domestic product.

CONCLUSION AND RECOMMENDATIONS

The aim of the study was to make an empirical analysis about the impact of determined agricultural exports' products on the domestic economy's growth of Peru and about the importance of grape and avocado exports in the agriculture sector growth using annual data for the period 1998 – 2016. Grape exports, avocado exports, agriculture growth rate, real exchange rate and price consumer index (CPI) for each year of the stipulated period were used as determinant factors of the economic growth. Augmented Dickey Fuller (ADF) test, the Phillip Perron (PP) test and the Granger Causality test were employed for data analysis.

The study revealed that there's a positive relationship between the agriculture sector growth rate, the avocado exports and the real exchange rate with the economic growth; which can be explained for the importance of the agriculture activity in Peru; and a negative relationship between the consumer price index and the economic growth which is explained by devaluation expectations of domestic currency as a result of high domestic prices. ADF and PP tests showed that, with the exception of the real exchange rate, all determinants achieved stationary at level I (0). These finding supported the econometric regression model used in this study. Moreover, Granger Causality test revealed a unidirectional causality relation between the agriculture growth rate and the real GDP, and between grape and avocado exports and agriculture growth rate. The increasing export demand of these products provides ample economic opportunities in the agriculture sector including the income and the employment generation for local farmers in the production and value addition stages.

The study not only supports the hypothesis that agricultural exports led to the economic growth in Peru in recent decades, but also evokes the importance of diversification in the agriculture sector, especially in the production of fruits such as avocado and grapes, which are characterized by price volatility, seasonality, and low competitiveness. The study also contributed to the existing pool of literature on agricultural exports and economic growth in a developing economy, and filled the existing information gap in Latin America.

Based on the findings, we recommend that Peru needs to promote the value-added agricultural exports through the expansion of public policies in order to achieve the main objective, which is to have a sustainable economic growth in a long-term. The specific recommendations are:

- The government should incentivize private sector enterprises to encourage investments in the agriculture sector; which should include incentives for research and development on the improvement of the production quality and the solutions for possible diseases and pests, thus ensuring higher profits from agricultural exports.

- Although the avocado and the grape exports have a direct relationship with the economic sector growth, in the case of the grape, it has a negative impact on the real GDP growth in Peru. It could be explained for the small-scale production, which has as a consequence the exportation of this product in a raw form attracting low revenues. To revert this situation, the government should formulate projects for the creation of agricultural cooperatives that should have as a main objective the increase of the productivity.
- The technical and managerial capabilities of the stakeholders (including small producers, exporters and others) should be enhanced through trainings, demonstrations and field visits to stimulate the production of specific agricultural products depending on the climatic, soil and ecological characteristics.
- Agricultural credits with low interest rates for farmers should be promoted by the Government as a linked strategy with the objective to have a major impact.
- The government should provide facilities for the modernization of the production technologies and encourage farmers for commercial production.

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STRENGTHENING THE ROLE OF GOVERNMENT IN RESOLVING FRAUD AND DISPUTES OF THE FLAT MANAGEMENT

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ABSTRACT

The public concern with the housing issues and conditions including flat management becomes current phenomenon in developing countries such as Indonesia. However, less attention has been paid by researchers to discuss the role of government in the flat management. The fact is that fraud and disputes often occur as a result of the management of flats such as management fees and monthly billing invoice becoming the main issue at the court. Through case law approach method with four different cases, this paper therefore captures several issues related to the management of flats. For instance, this paper discusses a case where flat management companies tend to increase maintenance fees without having a consent or agreement, both from owners and tenants. Disputes are also related to transparency of collected management fees by flat management companies, causing dissatisfaction from the owners and tenants. Hence, this paper suggests that there is the need of government's role in the flat management issues. This suggestion is relevant to the idea of exercising government's power through monitoring flat management companies in order to comply with flat legislation. This paper argues that the use of government's authority could be practised through monitoring system and setting up administrative procedure on the management of flats.

KEY WORDS

Flats management, fraud, disputes, government, authority.

Human settlement and housing are still essential issues in today's life (see UN-HABITAT, 2018). However, there are several challenges on housing arrangement such as the need of the provision of land (Aalbers and Gibb, 2014). It is the fact that land development for various purposes is increasing. Despite of the increase of residential development, the current availability of land is limited, both in terms of quality and quantity. As a result, several governments consider the importance of developing shared houses or residences in a multi-storey building, where units of flat can be owned separately (Hutagalung, 2007). This initiative provides an alternative in tackling problem of a high demand on housing and settlement (Public Communication Center, 2018)¹, especially in urban areas where people population continues to increase. Other benefits of developing flats in a multi-storey building are: developing flats can reduce the massive use of land, developing flats are able to create more open spaces through the concept of shared facilities and public space, and developing flats can be a way to rejuvenate cities from slum areas (Hutagalung, 2005).

Technologically, the multilevel building system, in the sense of the function of building space used separately by different owners has been recognized and implemented in several big cities in Indonesia. However, the ownership system of the building is a sole proprietorship system, meaning the owner of land is also the owner of the building (Sutedi, 2010). Therefore, tenants of flats under this kind of ownership system are only bound in the form of

¹ The Head of the Agency's Research and Development (Balitbang) Department of public works (PU) Hendrianto Notoesoegondo revealed, the needs a home that has not served the current backlog reached 5.8 million units. Although the national population growth tends to be decreased from 1.98 percent per year on 1980-1990 be 1.4 per cent per year on 1990-2000, but the growth of the urban population in 1990-2000 are still quite high which is 3.5 percent per year.

a lease relationship without having material rights to the object of the agreement. Consequently, there is a limited use of the property by tenants.

Indonesia has a legal instrument in the form of laws in regulating flats through the Law of the Republic of Indonesia Number 20 Year 2011 on flat regulations called *Undang-undang Rumah Susun (UURS)*. This law introduces a new ownership entitlement to property, that is, the property rights for the unit of flat (*Hak Milik atas Satuan Rumah Susun/HMSRS*), consisting regulations of individual rights over units of flats, collective rights to land, rights to objects and common parts which all constitute as an inseparable unity (Hutagalung, 2007).

Based on Indonesian flat law and regulation, flats are defined as multilevel buildings constructed in an environment which is divided into functionally structured sections, either horizontal or vertical. Flats are also deemed as units of residential which can be owned and used separately, especially for housing which are equipped with shared and common areas and land². Thus, flats consist of units with the main purpose as residential, connected to public roads (Hutagalung, 2005).

Individual ownership of flat units has collective rights on common land, shared areas and objects. Common land means a right of plot of land or a leased land for a building used on an indivisible collective basis with the building permit. Shared areas is an indivisibly use of shared floors in functional units within the building. A shared object is an object that is not a part of a flat but a shared part indivisibly for shared use.

There are various activities in the management of flats which include development, control, utilization and management, maintenance, institutional and community roles that are implemented in systematic, integrated, sustainable, and in responsible ways. Thus, the development of flats should meet various technical and administrative requirements which are more strict than the construction of ordinary houses. The reason is that the flat is a multi-story building and will be inhabited by many people, so there is a high requirement on security, safety and living satisfaction within the building (Hutagalung, 2005:197-198).

Recently, there are disputes at the court level in relation to flat management. The problem is, for instance, related to flat insurance where owners and tenants of the flats do not receive direct benefits from the building insurance. Legally, the association of owners and tenants of flats or called *Perhimpunan Pemilik dan Penghuni Satuan Rumah Susun (P3SRS)* is an organization which has a legal right to the arrangement of flats, not the flat management companies. Another instance of disputes is that developers or building contractors do not help or support in the establishment of P3SRS or in some cases developers or contractors tend to control flats management by establishing P3SRS through employees or tenants who can be 'managed' by developers or contractors. In some cases, developers or contractors continue to act directly or indirectly as flat management from the beginning of the flats development to the process of sale of entire flat units. Basically, P3SRS is the legal entity to act independently and becomes the representative of owners who is obliged to manage and protect the interests of owners and tenants related to common shared areas, land and occupancy (Sukarmadji, in Ramelan, 2015).

Furthermore, P3SRS as a legal entity is the only legitimate manager in the area of flats. Thus, this legal entity can not be replaced by other parties. However, the issue of management authority arises in relation to the term of "governing body" as stipulated in the Decree of the Minister of State for Public Housing as the Chairman of the National Housing and Settlement Policies and Controlling Agency Number 06/KPTS/BPK4N/1995/1995 on the Guidelines for Establishment of Articles of Incorporation, Articles of Association and by laws of the Housing Association of the Flat Residents, specifying an organization which has

² Indonesia law uses the term of "flats". However, there is another term used, namely "condominium". Condominium or condo is a form of residential where a particular part of real estate. Generally, apartments are privately owned where they can use of and access to facilities such as hallways, heating system, elevators connected with private ownership and controlled by the owners or association which describe the ownership of all parts. The term of flat is often used to refer to the unit itself replacing the words "the apartment." As the development of flats increased, there are number of apartments/condos for sale to consumers. Condominium is the legal term used in the United States and some parts of provinces in Canada. In the province of British Columbia in Canada, condominium is called a strata title. In Quebec, the term syndicate of co-ownership is used. In the United Kingdom (UK) and Wales, it is equal to commonhold, a form of ownership introduced in 2004, but it is uncommon in some places.

responsibilities to carry out the task of managing the flats is "governing bodies". On the other hand, the provision of Article 75 paragraph (4) jo. Article 75 paragraph (1) of UURS mentions that P3SRS should be entitled to appoint a "manager" who is not a governing body. Thus, the word "body" seems to replace P3SRS legal entity.

Therefore, those problems related to the terminology of governing body are used as an opportunity for contractors or management building to commercialize shared areas of the flats by leasing out the collective rights such as communal properties, shared areas and land to third parties. Developers or contractors have actually sold the flat units, but in practice through the governing body, contractors then commercialize or lease those areas to third parties. As a result, the governing body generates income from several businesses such as parking area for residents, renting the roof of the building for Base Transmition Station (BTS) to telecommunication companies and restaurants or canteens to third parties without having accountability report to owners and tenants/residents. In other words, all income earned from those practices are not intended to provide benefits for owners of flat units and tenants and also there is no transparency to owners of the flat units and tenants/residents as the standard rules has mandated in the UURS and the rules in the statutes/by laws or *Anggaran Dasar – Anggaran Rumah Tangga (AD/ART)* of flats union.

Another issue related to residential/flat management is management fees, called *Luran Pengelolaan Apartemen (IPL)* where flats management is an entity which is in charge in the collection process of fees. It is the fact that flat management acts as a collector of the fee. But, legally the right to do so according to the provisions of Article 75 paragraph (3) UURS is the association of residents and owners of flat units (P3SRS) (Sukarmadji, in Ramelan, 2015). The right to collect IPL fees, based on articles of association and by-laws of households and contractors, uses the letterhead of P3SRS. But, in reality, flat management companies often do not have permits such as domicile permits and permits to run the management of a building. Flat management companies often do not perform the obligation to hold annual general meeting of members in Annual Meeting/*Rapat Tahunan (RUTA)*, at least two times a year, and it must be accountable. Information of the number of legitimate owners and occupants who attended the RUTA is often inaccurate and not transparent. It is controlled by managers to manipulate the number of votes in the ballots in each meeting to elect the P3SRS board or in assessing and ratifying the P3SRS financial report. This situation indicates that P3SRS ignores the obligation to report the number of tenants every six months to the government i.e Housing and Settlement Service Office. This means that letters from the government office in relation to ask data or information of the number of tenant is often ignored by management of P3SRS. Unfortunately, there is no consequences when they ignored the letters.

Moreover, flat management companies in collecting IPL do not based on real needs or real expenses as regulated in Article 57 paragraph (4) UURS. This collection results in losses of owners' and tenants' flats³. Flat management also collect water and electricity bills with value added tax (VAT). In fact, those bills are not subject for VAT. With reference to the provisions of Article 57 paragraph (4) of UURS, electricity bill should be based on real operational and maintenance costs. Electricity tariffs should be charged at the real cost, which is the amount paid to State Electric Company/Perusahaan Listrik Negara (PLN) divided by the amount of power used by tenants, without inflated (marked up). Flat management companies can not act as a power or an electrical company and/or an electricity seller which impose electricity tariff on tenants by adding up 10% operator service fee and 10% of value added tax (VAT)⁴.

³ Regarding the provision of clean water, the property management company is not entirely supplier or seller of water, but secretly they have sold water waste water processing results with the level of quality of cleanliness appropriate laboratory test results TAPS Jaya only 0.8 (PDAM water standard PD PAM Jaya obliges 0.2 = 25%) and the number of processed waste water being sold to citizens at a price of TAPS plus operator services 10% and VAT 10%.

⁴ There is indeed power consumption for shared needs, including for electrical generator set. However the costs are included in calculating the rate of service charge and bills to owners and tenants of flats. As the provisions of article 57 (2) paragraph UURS governing that proportionally in accordance with NPP respectively, property management is often argued that the price of electricity was raised because of the lost power. This act can be judged to violate the principle of fairness and makes no sense and violates the rules. Related to this, the fundamental issue is not about low or high price of the IPL, but it is how to determine

In relation to collection fees by the governing body, the reserve or sinking fund is that the money belongs to owners and tenants which have been determined and it must be kept in separate accounts. However, from the beginning of operating flats the fund is saved in the accounts of developer companies or contractors, with no accountability to owners and tenants, as mandated by AD/ART. The flat governing body deliberately places the IPL funds which legally belong to the owners and tenants unlawfully, because the UURS requires the funds of those parties to be managed by P3SRS, as a non-profit institution and must be free from any business risk activity.

Based on various problems occurred in the management of flats described above, it shows that central and local governments have not been able to prevent and overcome the problems. This paper, therefore, argues the importance of the government authority to prevent and cope problems, causing from flat management companies. Thus, this paper answers research questions: how do fraud and disputes occur in the management of flats; and how do central and local governments overcome fraud and disputes in an organization especially on the management of flats.

Case Studies on Fraud and Disputes in the Management of Flats: Case Law Approach. Fraud and disputes are two common cases between P3SRS and the flat management companies due to IPL arbitrarily. In this paper, the author discusses four different cases of fraud and disputes in the management of flats.

First is the case of flats in Jakarta, Indonesia where there was a termination of fraud and disputes through Central Jakarta District Court by Decision Number: 529/PDT.G / 2012/PN JKT PST. The actions of the governing body were not in accordance with the statutes and households of the mixed flats, and the increase of the IPL did not decide through a meeting and there was no socialisation of plan to increase monthly bills or management fees to tenants. As a result, one of tenants committed an act to report a property manager or flat management company to the police. This report has lasted for 4 years from 2008 to 2012.

Fraud and disputes on the flat management in relation to raising IPL without proper procedures, causing problems between governing body and P3SRS. However, the two parties did not respond at all, instead the governing body creates repressive and arbitrary actions by unilaterally shutting down the flow of electricity and water on the housing unit of the occupants. Moreover, the flat management company try to find faulty of tenants, which ended up with the criminalization of his conviction with the allegation that the residents of the flat units had illegally and without right exploited electrical facility in the corridor of the flats. The residents/tenants of flats claimed that their actions were to utilize the private rights of residents themselves on common objects and shared areas, as stipulated in the Statutes of Flats (AD/ART).

Utilization of facilities in the form of electricity which flows in corridors of the flats is indeed the right of each resident/tenant in accordance with the value of proportional comparison that represents the absolute right of each occupant to common areas and objects. Consequently, if the governing body considers the act of utilizing the common facilities to be considered an act categorized as violating the ART, it should be resolved through a bipartite dialogue between tenants and the P3SRS. If bipartite dialogue does not come up with good decisions or results, then the problem is brought into a tripartite dialogue, involving supervisory institutions owned by the government, called *Dinas Perumahan and Kawasan*. Unfortunately, the procedure of this dialogue has not been regulated by law, so that all 'small' problems are brought to justice institution either civil or criminal by making a complaint to the police. However, in practice, contractors/developers who are often called management building with the power of P3SRS claims to be a manager with the same authority with the P3SRS authority. Whereas management building does not have the capacity to act on behalf of the tenants and owners of flats. The position of management building is to perform P3SRS obligations.

and to decide rates that deviate from the provisions of the Act Tax Director, number: S-139/PJ/2013 date 24 May 2013 which confirmed that water and electricity under 6,600 Watts is not subject to VAT.

The second case of fraud and disputes in the flats management is between the P3SRS of a mixed flat against the residents/tenants of flats. This case has been decided by the Central Jakarta District Court Decision Number 510/Pdt.G/2013/ PN.Jkt. Pst. In this case, the P3SRS acts as an arm of a building management that claims to be the management agency, collecting money from flat owners who are unwittingly aware of the occupants, even raises the IPL significantly without the approval of the flat owners. The actions of the governing body violate the rules of law and rules in the AD/ART. The money collected is never accounted transparently as required in the AD/ART. Various methods are used by P3SRS to take sides and to protect the economic interests of the management building. However, by placing the people from the governing body to become P3SRS board and one of the requirements to become P3SRS should be prioritized to owners or residents/tenants who live in the flats.

P3SRS as a governing body is entitled to issue a threat warning against the flat owners, but in reality management building conducts execution action against the owners, such as the cutting of electricity and water with the intention that the residents/tenants of the flats pay all the bills where this act is actually illegal. In many cases, the governing body, further, intimidates tenants by using hundreds of security unit officers when there are protest from flat owners at the time of organizing RUTA⁵, especially at a meeting in changing P3SRS boards.

Residents of the flats are also disappointed when the governing body does not report IPL collection fund without transparency, requiring the governing body and P3SRS to, in good faith, submitting copies of bookkeeping records and financial management reports. These demands are actually reasonable because the financial statements are the right of residents/tenants.

The third case of fraud and disputes is between the organization of the merchant association and the owner of flats (rival) with P3SRS residential and non-residential homes and a trading center. This case has been decided by the Supreme Court with Supreme Court Decision Number: 236 K/TUN/2016. In this case, the flat governing body conducts the General Meeting of P3SRS Elections witnessed by the Governor of the Special Capital Province of Jakarta Province. However, the General Meeting was conducted without involving the traders and residents/tenants of the flat. The general meeting was attended by a majority of development staff and the majority of non-owners and residents of mixed commercial houses and trade centers, among others: the owners and residents of the flat units and trading centers, developer employees and governing body.

The Governor of the Special Capital Region (DKI) of Jakarta through the Head of the Housing and Building Agency of the Provincial Government of DKI Jakarta subsequently plans to issue the Decree of the Governor of the Special Capital Region of Jakarta Number 273 of 2014 in connection with the ratification of the Deed of Owner Association and the Residents of the Mixed Commercial Flats and Trade Center. However, against the Decree of the Governor of Jakarta Capital Special Region (DKI), the residents/tenants through the forum of the association organization of the flats' owners submit a letter of objection and continue to attempt to send a letter to all parties in order not to publish and legalize the P3SRS Formation Act. This effort lasted more than three years from February 2011 to February 2014 but finally the Governor of Jakarta still issued the Decree. The residents/tenants of the flats considered that the Decree of the Governor of Jakarta was very harmful to them. Thus, based on this reason, the residents/ tenants filled a lawsuit to the Jakarta Administrative Court.

The fourth case of fraud and disputes is between the owners of the flats which is also a company in the form of P3SRS flats and the Provincial Government of the Special Capital Region (DKI) of Jakarta which issued a Decree Number: 1329 related to the legalization of the deed of establishment of Flats' P3SRS. This case has been terminated by the Jakarta Administrative Court Number: 218/G/2011/ PTUN-JKT. The Company as the owner of 37

⁵ *The obligation to hold a RUTA that is set up by default in the by law should be held minimum once a year to ask for consent and legalize the use of operational costs of the previous year. RUTA is usually held only at the time of the expiry of the management of P3SRS and simultaneously turn the administrators P3SRS.*

(thirty seven) units of flat units filed a lawsuit against the Provincial Government of the Special Capital Region of Jakarta for issuing decision letter, number: 1329, related to the legalization of the deed of establishment of P3SRS. The company as the owner of 37 units of flats felt that the Decree of the Provincial Governor of the Special Capital Province (DKI) of Jakarta had harmed the company because it had been based on false legal considerations and it was not supported by legal facts which occurred and contrary to the laws and regulations.

The Decree of the Provincial Governor of the Special Capital Province (DKI) of Jakarta decides: (i) ratification of the goodness of Establishment of the Housing Association of the Flats; (ii) a copy of this Governor's Decision should be granted to subsequent applicants to P3SRS members; (iii) decision of the Provincial Governor of the Special Capital Province (DKI) of Jakarta should be effective on the date of stipulation. The Company as the owner of 37 units of flats assumes that the implementation of the meeting of the establishment of P3SRS does not comply with the positive law and the propriety principle. As long as the association has not been formed, the interests of the management with the owners and tenants done by the company as the developer become the temporary administrator of P3SRS in accordance with the provisions of Government Regulation Number 4 Year 1988 regarding flats/ government regulations.

The company as the owner of 37 units of flats as the temporary P3SRS management sent a letter of invitation to the establishment of P3SRS to elect, establish and authorize the P3SRS board and authorize AD/ART of the dwelling house association. However, the meeting was not attended by all owners and residents of the flats because they did not accept the invitation. The meeting was attended only by a small portion of the owners and residents/tenants of flats. The company as the owner of 37 flat units was suspected that they just invited only the flat owners whereas the government regulation of flats has made it clear that the members of the flats association are legal subjects owning, using, renting, utilizing the respective flat units. However, the formation meeting did not discuss and validate the meeting as the basis or foundation in the implementation process of the formation meeting. Whereas, the order of meetings becomes the basis of decision. According to the principles of democracy and propriety, it is required to organize a meeting aimed in arranging the meeting to establishment P3SRS. Thus, the formation meeting can be judged as procedural defect.

Exercising Government's Authority to Overcome Fraud and Disputes in the Flats Management. To understand the government's authority in resolving disputes in the flat management fees has recently become a trend in developing countries. There is the fact that a theoretical description as well as in practice of two distinguishable terms: government and governance. Governance relates all affairs undertaken by the state in carrying out the welfare of society and the interests of the state. Government is an entity to implementation government duties or an organ/tool or apparatus (Ridwan, 2006).

Government means the completion of the state which can be interpreted broadly or narrowly. In a broad sense, the government includes all the fittings of the state, essentially composed of executive, legislative and judicial power or other state apparatus, acting for and on behalf of the state. Whereas, in a narrow sense, the government is the branch of the executive power . In a narrow sense, the government is a tool of state organ entrusted with the task of government to perform the law. Whereas in a broad sense, the government includes all bodies that organizes all power within the state: executive, legislative and judicative. In the literature, government can be understood in two terms: as a function and as an organization (Ridwan, 2006).

Political power is the power to influence policy with its formation and consequences in accordance with the purpose of the holder of power itself. Political power is a part of social power, focusing on the state as the only authoritative party with the right to control social behavior by force. Political power not only includes the power to gain the adherence of the citizens, but also to the control of others with the aim to influence acts in the administrative field. Political power requires the use of power (*machtsuitoefening*). Power must be executed effectively in order to take control. To use political power requires the rulers, i.e the perpetrators who hold power with tools/means of power (*machtsmiddelen*) for the use of

power that can be done well. As a result, government exercises power (Budiardjo, 2011). Thus, governance can be understood in two senses: government function or commanding activity and governmental organization as the collection of governmental units (Hadjon, 1999:6).

The ruler or the government needs authority. In this regards, according to Budiardjo (2011), authority is related to power. Power is the ability of a person or a group of human beings to influence the behavior of a person or other group in such a way that the behavior becomes in accordance with the wishes and purposes of the person who has that power. Human beings have a variety of desires to achieve. To be able to make it happen, often they impose their will to other people or groups (Budiardjo, 2011).

The governmental authority is related to government administration. Activities in government administration under Article 4 of Law Number 30 Year 2014 on Government Administration encompass all activities: performing government functions within the scope of the executive, judicial, legislative; and to carry out the functions of government mentioned in the 1945 Constitution of the State of the Republic of Indonesia and/or the law. Thus, government administration arrangements include several aspects i.e. the rights and obligations of government officials, governmental authorities, discretion, administration of government, administrative procedures, government decisions, administrative efforts, fostering and development of government administration, and administrative sanctions.

In the implementation of its authority, the government as an agency or state administration officer may make a written stipulation, that is, the determination made by the state administration or administrative officer in the form of a concrete, individual and final state law action, which has a legal effect on a person or legal entity civil. The consequences of the law in the form of losses arising suffered by people affected by the decision. In relation to the written stipulation, Indroharto is more concerned with the content and not the format issued by the state administration or administrative officer. Written requirements are required for ease of evidence. Therefore, a memo or memorandum may meet the written requirements and will constitute a decision of the Board or Administrative Officer of the State under the PTUN Law (Siahaan, 2005).

Elements of state administrative law actions are distinguished from the actions of the government which is a legal action and the actions of the government which is a factual action. The authority of state administrators is only the actions of the government which is legal action, not the factual action (Siahaan, 2005:181). The authority of the State Administration Officer in making a written decree may result in legal consequences of the loss incurred, suffered by a person who is affected by the decision.

In relation to the actions of the government including act of laws, Indroharto says that the legal actions include; a decision intended to commit material deeds or goodness; refusal to repeat written appointments which have been issued; provision of written information; written preparatory acts as preceding the issuance of the actual written decisions; decisions that have not been defined as definitive and binding decisions; decisions which intended to bring about a legal effect but they are actually impossible to cause any legal effect; decisions that simply refer to existing legal; and decisions which relate to orders (Siahaan, 2005:81-182).

Concerning to the government affairs, the Elucidation of Article 1 Sub-Article 1 of Law Number 5 Year 1986 regarding State Administrative Court as recently amended by Law Number 51 Year 2009 on the Second Amendment to Law Number 5 Year 1986 regarding State Administrative Court, states that government affairs are executive activities. Basically, the government does not only implement laws but also follows the principle of *freies ermessen* which can perform other acts even though they are not yet explicitly regulated by law. Dutch literature is more popular to use the term of *bestuur* rather than the term of *uitvoerende macht*. In relation to state administrative decisions, besides executive decision or *gehonden beschikking*, there is also a discretionary decision or *vrij beschikking*. Dutch literature describes *the bestuuren* or field activity as the entire field of state after deducted by *regelgeving* and *rechtspraak*. Thus, if the definition of state administration is defined as

government affairs, it does not only include executive activities only. Perhaps, the Dutch concept can be used to formulate a proper understanding of government affairs.

Utrecht distinguishes state administrative decisions in several classifications: 1) the provisions of positive and negative decisions; 2) declaration of constitutions and constitutive provisions, quickness and fixed determination (*bijvend*), and 3) dispensation and permit (*vergunning*). Positive provisions cause rights and obligations to those determined subjects. Negative provisions do not result in changes of existing legal circumstances. Thus, negative provisions can be in the form of a statement of inaction (*onbevoegd verklaring*), a statement for either acceptance or not acceptance (*niet-onvankelijk verklaring*) or an objection (*afwijzing*); declaration and constitutive provisions. The declaration decree only states that the law is formed (*rechtvastellende beschikking*) and constitutive provision is to make the law (*rechtscheppend*) (Hadjon, 1996:142).

The flat management needs the government's role in the context of arrangement and assistance on flats which aims to improve the housing construction and functional housing for people's benefits. Arrangement and supervision of flats can be conducted on the basis of public policy, technical policy, and operational policies set up by each authorized agency. Thus, arranging and assisting flats are intended to support spatial conceptions, associated with urban development towards the vertical and also to rejuvenate slum areas. The government's role is also to improve optimization of the use of urban land resource and to support the development of high-density settlements.

Managing and assisting flats should include provisions on the technical and administrative requirements for the construction of flats. The technical requirements means the structure of building, health and safety, convenience related to design, and the completeness of infrastructure and environmental facilities which are regulated by legislation and adapted to the needs and developments. Administrative requirements, on the other hand, are the requirements concerning on business license of a housing construction company, permit or allotment of building/*Ijin Mendirikan Bangunan* (IMB), as well as the readiness of place which is the subject to legislation and tailored to the needs and developments.

Other provisions made for regulating and assisting flat projects include several aspects such as living permits, ownership of flat units or residential, and management and supervisory procedures. General arrangements and guidance in the widest sense of the development of flats should be under the authority and the responsibility of the central government conducted by a Minister as appointed in the relevant article in government regulation. Thus, the role of government should prevent and minimize potential conflict among flats management, owners and tenants. Therefore, the role of the government is required. In this regard, the government is deemed necessary to supervise the implementation of duties and responsibilities of the management of P3SRS and flat management companies.

The Importance of Administrative Sanctions. Governance is run and operated with governmental instruments. In this regard, Ridwan (2006) argues that government's instruments are tools used by government or state administration in performing their duties. Thus, the government or state administration should use juridical instruments in carrying out activities of the government as well as governmental and civic affairs, such as laws and regulations, decisions, policy regulations, licensing and civic law instruments (Ridwan, 2006:129).

In exercising authorities, the government as an official state administration may impose administrative sanctions. According to Hadjon et al (1999), administrative sanctions include: government coercion (*bestuursdwang*); the withdrawal of decisions on permits, payments and subsidies; imposition of administrative penalties; and the use of forced money by the government (*dwangsom*). In addition, *Bestuur* are concrete actions (*feitelijk handeling*) of rulers to end a prohibited actions under administrative law or on going actions which have to be abandoned by citizens since the actions are against the law. Thus, *Bestuursdwang* is the act of the ruler in a very direct way. Other sanctions play indirect (*weken meer indirect*) through imposition of administrative fines.

Implementation of sanctions by state administration should always be held on the basis of strict legislation. For the imposition of administrative fines must be absolute and unconditional obligations under a strict rule of law. In the past, state administration was supposedly in charge of taking necessary actions adjusting the real situation to what the law was established. If the citizen ignores the law, the authority of *bestuurdwang* has a consequence of the government's duty where the state administrative body has been given tasks in implementing legislations.

While, in the Netherlands, the authority of *bestuurdwang* is governed by law. However, the authority of *bestuurdwang* is always regulated in various laws. It can be determined that *bestuurdwang* can only be applied whenever there is an authority through legislation. Currently, a state administrative body confirms that it has the authority to run *bestuurdwang* when the authority is not based on the law. Government sanctions apply a decision that provides burden (*belastende beschikking*) (Hadjon, 1996:246) which represents the nature sanctions (Hadjon, 1996:247). But, the government can only impose sanctions in the case of violation of laws and regulations. In practice, government or state administration chooses employees who are assigned to conduct supervision. Such supervision is a requirement for the possibility on imposing sanctions. In other words, supervision can also support law enforcement (*handhaving*). In more preventive ways, employees can also conduct counseling to citizens, as well as advice, and a form of warnings in order to prevent the occurrence of sanctions (Hadjon, 1996:248,258)⁶.

The state is responsible for the regulation of flat management which is stated in the UURS. To fulfill these responsibilities, the government is obliged to carry out guidance on a tiered basis by Ministers at the national level, Governors at the provincial level and Regents/Mayors at the district/city level. Responsibility for the construction of flats can be done by synchronizing and socializing the legislation, policies and strategies for the flats management at the national level. The synchronization needs to be done is the Law which regulates the flats and this is supported by government regulations. Regulations at the relevant ministerial level also need to be enacted more fully and synchronized with the UURS. All legislation products should also be disseminated to provincial government, districts/cities, communities and all stakeholders.

In relation to stakeholders, the government can also empower them to develop and set minimum service standards of flats and to coordinate and facilitate the preparation and provision of database of flats at the national level. To carry out its responsibilities and duties, the government may exercise its authority, including establishing legislation, norms, standards, procedures, and criteria in the field of flats, facilitating the management of common areas and objects together with ordinary, private and state flats. The government may also use its authority to coordinate the supervision of the implementation of legislation regarding flats arrangement. Such supervision is also intended to provide legal protection to every stakeholder of the flats. Legal safeguards are undertaken by the government against each stakeholder for the flats legislation (Handajani, 2015). Legal protection is carried out both preventive and repressive. Preventive legal protection is made by involving all stakeholders. This presents opinions and objections to definitive government policies. While preventive law protection aims to prevent the occurrence of problems and disputes on flats issues, while repressive legal protection aims to resolve disputes (Handajani, 2015:44).

Not only at the central level, the government has the responsibility to undertake deep coaching at the provincial level. In relation to this responsibility, the provincial government has tasks to formulate policies and strategies on flats issues at the provincial level by referring to national policies and strategies, implementing synchronization and socializing legislation of policies and strategies for flats management at the provincial level. The provincial government has also a duty to carry out the operational function of the policy by providing flats and developing flats as part of the settlement area and empowering stakeholders at the provincial level.

⁶ In the Netherlands, legislation always requires an acceptance which is in urgent circumstances; a written warning must precede the implementation of *bestuurdwan*. This provision is a set forth in article 152 paragraph (2) Gemeentewet.

To undertake assistance, the provincial government may use its authority to develop guidance on the implementation of norms, standards, and procedures in the flats management set by the government. The provincial government can monitor and evaluate the implementation of the policy and strategy of flats at the provincial level as well as supervise and control the implementation of legislation, policies, strategies and programs of flats at the provincial level. The provincial government may also facilitate the management of common areas and objects with ordinary, private and state flats at the provincial level.

Supervision by the government can prevent the occurrence of fraud in collecting monthly management fees. The government needs to be firm if it finds the parties who collect IPL besides P3SRS. Supervision also needs to be done to flat managers who often do IPL collection which is not based on real needs, resulting in losses for owners and residents/tenants of flats. In terms of water and electricity bills, they in practice are often to be subject to Value Added Tax (VAT), which legally should not be allowed to be charged since water and electricity bills are classified as basic needs so they are not the subject of VAT.

Government needs to pay attention to fraud on flat management where the case of collecting IPL fees must be agreed by owners and tenants. Supervision on IPL collection is important since in practice flats management often do not have permits, such as domicile permits and permits to run the management of a building. Flats management often do not perform their obligations to hold RUTA twice a year which they have to hold accountability. Supervision by the government in organizing flats includes several aspects: planning, controlling and supervising. In terms of regulation, the government may make provisions in governing, developing, controlling, and utilizing flats. The issues also includes management and institution, quality improvement, and funding or financing systems.

In terms of control system, the government is expected to guarantee the flat management working in accordance with its objectives. Control can be done at the early stage when developers start planning to develop buildings. Control system should continue to the stage of development, ownership, utilization and building management. The management of flats at the planning stage is done through assessment of the suitability of the number and types, zoning suitability, location compatibility and certainty of availability for public utilities. The management of the flats at the stage of development is carried out through evidence of land ownership and conformity between building development and permit. The management of flats in the stage of ownership is done through the certification of flats' function, proof of land and building ownership and the ownership of flat units. Management stage should be conducted through supervision on the establishment of P3SRS, supervision of the management of common areas, objects and land. The flat management is carried out by the government through licensing, inspecting and controlling.

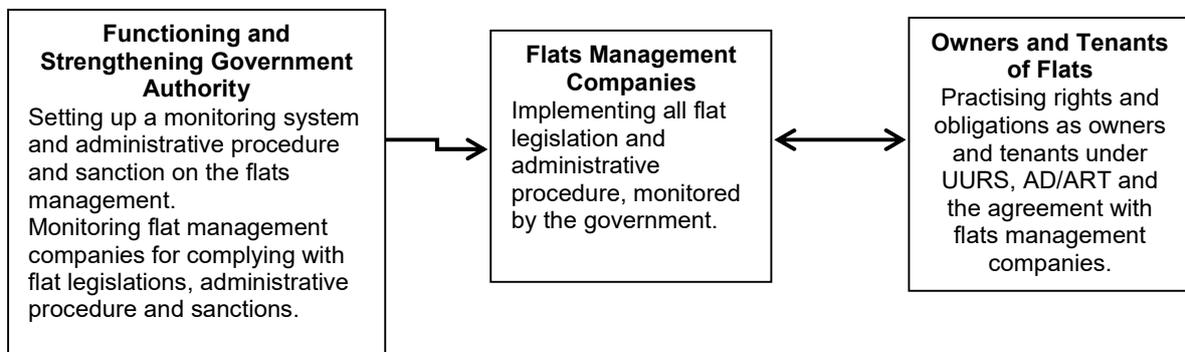


Figure 1 – Framework on Strengthening Government Authority to Overcome Fraud and Disputes in the Flats Management

Control system on flats is in relation to the government's power which is in the political field, affecting the general policy of its formation and its consequences in accordance with the objectives of the government function. This power is to control the actions of all

stakeholders to be obedient to the flats legislation and to influence their actions to comply with administrative procedure (Zayim, 2014). Control system is exercised by the government in the sense of making administrative decisions including imposing administrative sanctions to all stakeholders of the flats.

In exercising the government's authority, it is necessary to make administrative decisions in the form of written stipulation to all issues which may be considered as disappointing and unfair. Thus, the government's authority could help all parties who feel disadvantaged to file a lawsuit to the state administrative court. The lawsuit usually intersects with the government's decision whether a state administrative official revokes, declares null or avoid. According to Ridwan (2006), exercising the authority and maintaining the norms of administrative law and government organs can act as defendants in the judicial process, namely, in the case of any objection, appeal or resistance (Ridwan, 2006:77).

In making administrative decision, local governments also have authority under the provisions of Article 71 paragraph (1) UURS, which can control the implementation of flats, using several instruments. They are licensing, inspecting and controlling. However, such authorities have been limitedly restricted under the provisions of Article 71 paragraph (2) of the UURS where the implementation of controls should be governed by a Government Regulation (*Peraturan Pemerintah*). Nevertheless, local leaders such as Governors, Regents and Mayors have authorities to issue a Governor or Regional Regulation. It is, therefore, expected that legal certainty and protection of ownership and right to obtain proper and harmonious living as required by law can be achieved through Government protection.

CONCLUSION

In the management of flats, problems of fraud and disputes occur as an impact of management fees or monthly building maintenance (IPL). This paper has discussed several case studies in the area of DKI Jakarta, Indonesia where fraud and disputes appeared in the court. Common problem raised when there is a difference assumption and understanding on the practice of collected fees and bills for the owners and tenants by flats management companies or building management. This paper argues that ideally there should be an approval of owners as well as tenants of flats in the flat management fees and monthly bills. From case studies, this study found that collected fund has never been accounted transparently by the governing body or the flats management companies as stipulated in AD/ART. In other words, there is no consent form in the collection process as well as transparency on financial reporting of collected fees and bills. In addition, this research also found that the merchant associations, tenants and owners of flats are disappointed with the P3SRS as the governing body which was formed by flats management companies. In order to prevent and mitigate fraud and disputes in the management of flats, the central and local governments could use their respective authorities in the administration of flats under their jurisdiction through controlling actions of all flats' stakeholders in order to comply with the flat legislation. Thus, this paper offers a framework to significant departures in the flat management issues. Further strategy under the government authorities is that the government could enact the administrative procedures in the form of written stipulation.

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TOURIST DECISION IN MOUNT MERBABU NATIONAL PARK, INDONESIA

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ABSTRACT

This study aims to determine decision-making regarding tourist visit, preferences and average time of visit. The study was conducted using quantitative approach. The results exhibit travelers' characteristics are dominated by males within 15-30 age range. The average income is generally less than IDR 2,000,000 with monthly travel budget up to IDR 500,000 due to visiting motivation, that is, quiet and natural environment. Most tourists were originally from Central Java region, so transportation used in general is a private motorcycle and travel cars. Tourists' visitation is for recreation purposes with friends which generally last for two days with about 2 to 5 times annually. Lastly, travel activity most favored by tourists is camping.

KEY WORDS

Visitation decision, tourist, national park, mount Merbabu, ecotourism.

Forest in national park area possesses natural resources capable to provide various benefits for human life in the surrounding and areas beyond. These populations are affected directly and indirectly. National park tourism is one of such benefits. Along with the increase in population and economic needs, it increases the need for forest resources. There is another supporting aspect in the form of customs, culture, cool weather, and the beauty of natural panorama. The increasing population rises density, routine work and activities which create a sense of saturation. Therefore the population requires entertainment in choosing tourist attractions such as tours to the national park. According to Pitana and Gayatri (2005), prior to conducting a tour, a prospective tourist first performs a mental process to decide when to travel, travel duration, destination, transportation method and so on. The process of visitation decision making is very important for tourism development as it is related to the facts affecting decisions and these factors may affect promotion process (tourism marketing). Understanding the visiting decision-making process is as important as the basis of the promotion process in product planning and market segmenting or target marketing.

Market segmentation could be observed from the existence of budget inclusion on tourism commodities in the form of hike routes in Selo District's Mount Merbabu National Park. The budget was implemented in 2014 and 2015 which are respectively IDR 110,517,000 and IDR 403,560,500 (Mount Merbabu National Park, 2015). This indicates tripled visitations compared to the previous year. Based on statistical data survey of Mount Merbabu National Park (2014), domestic tourist visits in 2010, 2011, 2012, 2013, 2014 and 2015 respectively reached 11,700, 23,598, 27,431, 25,012, 25,578 and 24,600 people. This indicates an increase in the level of tourist visits to Mount Merbabu National Park. The influence of tourist visiting decisions is very meaningful for the development of the tourism industry and local revenue, therefore, domestic and foreign tourists are interested to visit (Rantetadung, 2012).

According to Pitana and Gayatri (2005), tourist visitation decision-making process went through several crucial phases which are described as follows. First, prospective tourists respective needs and desire to travel. They weigh whether they ought to conduct the trip or not. Second, prospective tourists need information and assessment towards the destination. This is conducted by contacting a travel agent, studying promotional materials (brochures, leaflets, mass media), or discussing with experienced people beforehand. This information is evaluated to decide on alternatives related to various destinations to be visited in allotted time and budget. Third, the decision to travel, including tourist destination, accommodation

type, travel method, and activities to be undertaken in the tourist destination. Fourth, travel preparation and tourist experience by booking accommodation and travel method, conducting personal preparations, and finally carrying out the travel activities. Fifth, tourists do an assessment on their travelling satisfaction. During the trip to tourist destination and after returning to the country of origin, the tourists consciously or unconsciously always evaluate their travel which will affect visitation decisions in the future.

There are several factors that influence the decision-making process as described by Pitana and Gayatri (2005):

1. Tourist characteristics, both social and economic characteristics (age, education, income, and previous experience), as well as behavioral characteristics (such as motivation and the value held)
2. Awareness of travel benefits, knowledge of destinations to be visited, the image of the destination
3. Trip features, including distance, stray duration, time and cost constraints, uncertainty risk, and the level of confidence in the travel agency
4. The advantages of the tourist destination, which includes the type and nature of the attractions offered, service quality, physical and social environment, political situation, accessibility, and local community attitude towards tourists. This is in line with the regulation of Boyolali Regent No. 21 The year 2015 regarding work plan Boyolali Regency Regional Development in 2016. One of which discussed the potential of regional development for tourism, in increasing tourists decision in choosing a tourist destination to Merbabu Mountain National Park.

Therefore, this study was conducted to determine factors affecting tourist decision in visiting Mount Merbabu National Park. It is conducted in order to create tourism management strategy in increasing tourist visits. The objectives of this research are as follows:

1. To determine tourist characteristics related to gender, age, income, origin, travel time in Selo hike route Mount Merbabu National Park
2. To determine characteristics of tourist visit related to type, purpose, habit, the preferred activity on the Selo hike route Mount Merbabu National Park.
3. To determine the characteristics of tourists budget utilized to travel to Mount Merbabu National Park
4. To determine infrastructure facilities found in the Selo Hike Route Mount Merbabu National Park.

The research result could be used as ecotourism information development of Mount Merbabu National Park, Selo District, Boyolali Regency.

METHODS OF RESEARCH

The location of the study was determined by purposive sampling (as the purpose of the study), at Wonolelo Resort Selo Hike Route in Selo District Boyolali District. Based on the revised zonation document of Mount Merbabu National Park (2014) as stipulated in Forestry Ministerial Decree number 135 / Menhut-II / 2014, it is an area of ± 5,725 hectares, geographically located at 11⁰⁰ 32 'BT - 110⁰ 48' BT and 7⁰ 38 'LS - 7⁰ 48'LS. This area has the highest peak at 3,142 meters from sea level. Topographic range from light to mountainous (slope starts from 8% to above 40%). The study was conducted in September and October 2016.

Research Sample. Research respondents were tourists who visited Mount Merbabu National Park, Boyolali Region within the limit of data collection period for 2 months using in-depth interview and research questionnaire. The number of research samples is determined based on the consideration of the Slovin formula, namely:

$$n = \frac{N}{1 + N e^2}$$

Where: n = total sample; N = total population (140 people); e = toleratable sampling mistake (5%).

Total tourist sampling formula:

$$n = \frac{N}{1 + N e^2} = \frac{140}{1 + 140 (0,050)^2} = \frac{140}{1 + 0,40} = \frac{140}{1,40} = 100 \text{ tourist}$$

Tourist samples obtained were 100 tourists. These provide narrative and general description of tourist decision to visit Merbabu Mountain National Park.

The sampling method is carried out by accidental sampling. Researched selected tourists who are in the research area and willing to complete the questionnaire and be interviewed in detail. Respondent selection is based on several factors such as being in productive age of at least 15 years, able to receive and respond to questions asked directly, the level of income used for students and unemployed is the amount of money (in the form of allowance, grant, scholarship, prize) obtained, physically and spiritually healthy, and can communicate well.

Data Analysis Approach Method. Data analysis approach method utilized is a mixture of quantitative and qualitative methods (mixed methods research). This approach method combines qualitative methods with the support of quantitative methods aimed at obtaining a complete picture and a thorough understanding (narration and data in numbers). Based on the results of the research data analysis approach, the researcher can clearly explain the characteristics of tourists, visits, budgets, supporting facilities and infrastructure of Mount Merbabu National Park.

RESULTS AND DISCUSSION

Tourist Characteristics. In general, tourist characteristic in Selo Hike Route is tourists possessing conventional psychographic characteristics. Conventional psychographic characteristic is are people demanding perfection of service and completeness of tourism infrastructure (Weiler et al., 1992). It was seen from tourists effort to visit Mount Merbabu National Park Ecotourism by setting aside their spare time, preparing equipment and supplies, as well as route planning.

Table 1 – Tourist Characteristic Category

No.	Tourist Characteristic	Category	Percentage
1	Gender	Male	86
		Female	14
2	Age	15-20 years old	48
		21 - 30 years old	51
		> 30 years old	1
3	Income	0	1
		< IDR 2.000.000	63
		IDR 2.000.000 - 5.000.000	13
		IDR 5.000.000 - 10.000.000	22
4	Place of Origin	IDR 10.000.000 - 20.000.000	1
		West Java	21
		Central Java	53
		East Java	15
5	Travel Time	South Sumatera	11
		< 2 hours	22
		2 - 4 hours	28
		> 4 hours	50

Source: Research primary data (2016).

Gender Characteristic. Tourist decisions are also influenced by personal variables (Kotler, 2005). These characteristics include aspects such as age, life cycle stage, occupation, economic situation, income, and lifestyle. Gender characteristic information is

required to determine dominant tourists in order to produce activities planning to be conducted at Mount Merbabu summit during camping. The results of this study analysis aim to determine the type of tourist attraction favored by tourists based on gender/sex that come Selo hike route in Mount Merbabu National Park. Most tourists are males (86%), while the remaining 14% are women. This is caused by men's physical strength that are more productive than women. This is in line with Tazkia's statement (2012) that male tourists (60%) are more dominant than female by 40% at hot springs tourist attraction in Wonosobo.

Age Characteristic. Information on age characteristic is required to determine the dominant age of tourists to be used as a promotional target of ecotourism development program plan. Based on the research result, tourist visiting Selo Hike Route are within age range 20-30 years (51%), 15-20 years (48%), and tourists aged > 30 years (1%). Youth stamina between 15-30 years is higher than those aged at > 30 years. Therefore, the average tourist aged 20-30 has a suitable market on this tour, with activities such as transfer of knowledge related to agricultural activities of various types of horticulture other than hiking activities. Tazkia (2012) stated that tourists are dominated by respondents who are in productive age at an average of 15-29 years. Similarly, in Nahriya's research (2015), tourists in Umbul Songo are mostly male (53%) with age range within 21-25 years. Similar tourist characteristic is caused due to most tourists are within 20 to 30 years age range. These tourists are relatively healthy, concentrated on the association of friends, not having family or small children. Therefore activity chosen is to enjoy the beauty of nature by performing various challenges in the hike route.

Income Characteristic. Information on tourist income characteristics was determined to determine tourist categories capable of spending the time to travel with appropriate budget type. Research result exhibits income level of < IDR 2,000,000 (63%), IDR 5,000,000-10,000,000 (22%), IDR 2,000,000-5,000,000, IDR 0, and IDR 10,000,000-20,000,000 at 1% respectively. Most tourists are within category < IDR 2,000,000, as this category is dominated by students and college students who obtained an allowance from their parents. The group of IDR 5,000,000- 10,000,000 was dominated by workers. This is in line with Prasetyo's research (2013) stating that tourist income averaged at IDR 1,645,667.

According to Keliwar's statement (2015), the average income of tourist visiting Pampang Samarinda cultural village is generally more than IDR 3,000,000 (32.1%). This is due to the uniqueness of Pampang cultural attraction such as the existence of a historical building architecture, sculpture, beads craft, dances, and traditional Dayak musical instruments. Therefore foreign tourists or domestic tourist from outside the island have a greater interest. In contrast to tourists in Selo hike route, these are generally dominated by adolescents to adults levels possessing intermediate level of income.

Place of Origin Characteristic. Place of origin characteristic information is needed to determine the level of promotion and tourists' curiosity in Mount Merbabu National Park Ecotourism. Research result exhibits that most tourists were originated from Central Java (53%), West Java (21%), East Java (15%), and South Sumatra (11%). Tourists come from Central Java and East Java possess better accessibility compared to others as they would need to spend less time to travel to the National Park. Tourists from West Java and South Sumatra visiting Mount Merbabu National Park is led by their curiosity in seeing the differences on available attraction compared to tourist areas in their home region. According to Keliwar's research (2015), Pampang cultural village is mostly visited by tourist hailing from Samarinda (51.8%). This is similar to tourist in Mount Merbabu National Park coming from Central Java (53%), who is basically originated from the same province as the National Park itself. According to Wanti's research (2014) tourists in Kina Bukit Tanggul garden comes from Bandung (66.67%) and Sumedang (3.33%).

All this proves that most tourists come from the city where the tourist area is located. It can be concluded that Kina Bukit Tanggul does not have high promotion level and attractions diversity. Most tourist attractions are visited by tourist from the same region it's located at and regions within close proximity. Closer distance allows the tourist to apply optimal travel time and budget. Selo Hike Route tourist is originated from regions with a distance of more than 80 km or 1.5 hours travel time (47%). It indicates that Mount Merbabu

National Park has a unique attraction on the flora, fauna, cultural arts architecture, music or traditional dances, as well as the diversity of agricultural horticultural crops.

Travel Time Characteristic. Information on travel time characteristic is needed to determine tourist level of curiosity to visit the ecotourism area Mount Merbabu National Park. Research result exhibits tourist had to go through travel time > 4 hours (50%), 2-4 hours (28%), <2 hours (22%). Tourists who traveled 2 to more than 4 hours visited Mount Merbabu National Park due to unique scenery not owned by other National Parks. Tourists who traveled 2 hours and less were driven by the desire to conduct vacation in optimal time allocation.

According to Tazkia's research (2012), the average tourist tourist who traveled 5 km or less than 10 minutes from their residence or place of origin. This is dissimilar compared to tourist visiting Mount Merbabu National Park. In general, tourists had to travel \pm 180 km or 240 minutes to reach their destination, assuming that they traveled 30 km in \pm 45 minutes. Therefore tourists are more attracted to visit Mount Merbabu National Park than hot springs in Wonosobo.

Tourist Visit Characteristic. In general, a tourists visiting Selo Hike Route in Mount Merbabu National Park are those with conventional psychographic characteristics. Conventional psychographic characteristic is a character that demands perfection of service and completeness of tourism infrastructure (Weiler et al., 1992). It can be seen from tourist visit to ecotourism area in Mount Merbabu National Park by considering various things such as: with whom they make a visit, visitation purpose, stay duration, factors encouraging their visit, and preferred activity.

Table 2 – Tourists Visitation Characteristic Categories

No.	Tourist Visitation Characteristic	Visitation Category	Percentage
1	Type	1 person	8
		2 - 5 person	40
		6 - 8 person	32
		> 8 person	20
2	Purpose of Visit	Recreation	53
		Vacation	75
		Health	42
		Education	18
		Religion	6
		Sport	46
		Business	6
		Culture	6
		Work Assignment	11
		Family Visit	16
3	Behavior	1 time	44
		2 - 5 times	53
		> 5 times	3
4	Length	1 day	45
		2 days	49
		3 days	6
5	Motivation	Close Distance	41
		Easiness	34
		Adequate Transport	46
		Low Expense	20
		Nature Potential and Attraction	52
6	Preferred Activity	Quiet and Natural Environment	61
		Tracking	72
		Hiking	60
		Camping	85
		Education	15
		Star Observation	23
Religion	13		

Source: Researcher Primary Data (2016).

Type Characteristic. Information on the tourist visit type is needed to determine the level of promotion and curiosity on Mount Merbabu National Park Ecotourism. The analysis results exhibit that tourists come in 2-5 group members (40%), 6-8 group members (30), 8 group members (20%), and 1 person (8%). Tourist mostly comes in 2-5 group members. In general, there are couples who want to enjoy the scenery of Merbabu National Park. Group consisting of 6-8 people or more are a group of students and university students intent to experience adventure dissimilar to other attractions in other tourist destinations. According to Tazkia's research (2012), in general, tourists visit in a group or bring their family for the trip. This is similar to tourist visiting Selo Hike Route in Mount Merbabu National Park. In general, they visit in 2-5 group members. This is in line with Premono's research (2008) stating that tourists visit TWA Punti Kayu with relatives or friends (57%).

Purpose of Visit Characteristic. Every tourist has a purpose or occasion to travel to Selo Hike Route in Mount Merbabu National Park. Based on the research result, the tourist has the following purpose or occasion: holiday (75%), recreation (53%), sport (46%), and health (42%). Education, family visits, work assignments, religious, business, and culture are respectively 18%, 16%, 11%, 6%, 6%, 6%. Tourists visiting for holiday and recreation purposes generally come on weekends and public holidays such as Javanese New Year. According to Rizkhi's statement (2014), tourists on Palu Bay tour travel to their respective destination to enjoy the nature while on recreation to exercise, refresh, reflect fatigued body and mind due to daily activity, and restore health (78,99%). In general, tourists visiting Selo Hike Route and Palu Bay come for vacation purposes. Nahriya's research (2015) stated that most tourists in Umbul Songo come with recreation and vacation purpose (36%). Therefore Umbul Songo tourists have similar purposes to those visiting Selo Hike Route. Holidays can be classified into weekends (Saturday and Sunday) and public holidays which are common days for tourist to visit.

Behavior. Information on tourist behavior in one year is needed to determine the level of tourist satisfaction in ecotourism area of Mount Merbabu National Park. Research result exhibits that tourists generally conduct 2-5 visits per year (53%), 1 visit per year (44%), and more than 5 visits a year (3%). In general tourist visits Mount Merbabu National Park 2-5 times a year which indicates that these tourists generally return to this tourist attraction. They were drawn by available attractions, objects, beautiful scenery, and distinct cultural aspects. Based on Prasetyo's research (2013), Mount Merbabu National Park tourists visit 2 times annually which is more compared to those visiting tourism village. According to Tazkia (2012), tourists visit Wonosobo hot springs around 1 to 5 times, which is similar to Selo Hike Route in Mount Merbabu National Park. According to Nahriya (2015), Umbul Songo tourists generally revisit the tourist destination (70%). Therefore both Umbul Songo and Selo Hike Route tourists possess similar desire to return to a respective tourist destination.

Variety of scenic beauty can be seen from the planting activities of various types of horticultural crops along Selo Hike Route. This motivation that causes tourists to return, therefore the natural potential of nature in the form of horticulture species diversity can be a potential development of agrotourism in Merbabu Mountain National Park. This is in line with Koswara's research (2005) stating that tourists' dynamically growing preferences and motivation as well as the tendency of tourists visit natural environment led to the development of agro-based tourist attraction.

Duration Characteristic. Information on tourists' stay duration is needed to determine the tourists's stay duration in Mount Merbabu National Park Ecotourism. Research result exhibits that tourists generally stay around 2-days (49%), 1-day (45%), and 3-days (6%). The tourists generally stay for two days starting from Friday night to Sunday morning. Tourists who stay for one day come from a distant area therefore having limited time to spend in the location. There are also tourists coming from nearby regions who ride motorcycles to tourist attraction hence having limited time constraint as well. Nevertheless, in case of 3 days visit is generally caused by heavy rain occurring during the trip. Therefore the tourists had to extend their stay. According to Sitohang's research (2008), tourists generally visit Tuktuk Siadong in Simanindo District for more than 72 hour (49%). Their stay duration is longer compared to tourist in Selo Hike Route who generally stays for 48 hours

(48%). Tuktuk Siadong tourists come from abroad. These international tourists are interested to participate in events featuring cultural diversity, landscape, and community social life. They generally spent more than 24 hours. On the other hand, tourists on Selo Hike Route are merely enjoying the scenery in Mount Merbabu. According to Nahriya (2015), most tourists in Umbul Songo area around the springs of Mount Merbabu National Park Kopeng Resort does not spend the night, but merely conduct activities for one day (77%). In contrast to tourists visiting Mount Merbabu National Park, most conduct activities for 2 days as there are various activities along Selo Hike Route which could consume at least 14 hours.

Motivation Characteristic. Every tourist has the motivation or encouragement to travel to Selo Hike Route in Mount Merbabu National Park. Marsinko et al (2002) state that an individual's recreational visit is based on expectations of the activity benefits. Research result indicates that most tourist visiting Selo Hike Route in Mount Merbabu National Park are drawn by a quiet and natural environment (61%), natural potential and attraction as well as the local community (52%). Adequate transportation, close proximity, easy access to climbing routes, and low cost are 46%, 41%, 34%, 20% respectively. Tourist is generally motivated by nature potential and human attraction, as local community conduct 'cultural wisdom' activities such as New Javanese year, *Saderanan* (cemetery cleaning and maintaining ritual), *Sedekahan* (feast) and so forth. Adequate transportation is supported by adequate transportation facilities such as travel vehicle rental and motorcycle. Furthermore, the low cost incurred is reflected in admission fee, accommodation costs, or snacks with affordable prices for low to high society member.

Tourist is attracted to natural potential and attractions such as the various types of agricultural horticulture crops planted. There are chilies, cabbage, tomatoes, green onions, carrots, pumpkin on farmers' land which can be seen from along the main road of Selo District up to the hike route itself. Nature attraction exhibits farmer activity conducting planting, maintaining, or harvesting horticulture crop. This activity can be used as education media and promotion of the agricultural product for tourists. In line with Koswara's statement (2005), agrotourism is one type of tourism that utilizes agricultural business as a tourist attraction, combining agricultural and tourism activities. This provides a signal for the development opportunities of diversification of agribusiness products which means it would encourage new development area for the region.

According to Tazkia's research (2012), tourists' motivation is low expenses, which is dissimilar to tourist visiting Selo Hike Route in Mount Merbabu National Park. They are drawn by the presence of natural and human attractions as well as potential. According to Kastolani's research (2016), tourists possess physical and psychological motivation level at 37.68% in Cimahi tour. Cimahi tourist motivation is lower compared to those in Selo Hike Route, which is caused by similar tourism objects such as community agricultural and livestock caretaking activities. Nevertheless, Selo Hike Route's especially featured climbing and camping activities as well as observing flora and fauna from the summit of Merbabu Mountain.

According to Nahriya's research (2015), Umbul Songo Mount Merbabu National Park's tourist is influenced by tourism activities factors. Most tourists have never visited the location (5.4); colleague or family invitation (5.6) which has a somewhat influential meaning. The highest driving factor for visiting Umbul Songo is family and friend invitation (5.6). On the other hand, the highest driving factor for tourist visiting Selo Hike Route is drawn by the beautiful scenery and villages' natural condition (61%).

Preferred Activity Characteristic. Every tourist has the motivation or encouragement to travel to the Selo Hike Route in Mount Merbabu National Park. Research result exhibits tourist are interested in camping activity (85%), tracking (72%), hiking, animal, educational religious observations are 60%, 23%, 15%, 13%, respectively. Preferred activities such as camping enable tourists to spend time at the top of the mountain with relatives and watch the sunset. Tracking activity enables tourist to determine relatives' character during undesirable events. Tourists can also enjoy the trip by looking at various types of forest plants and beautiful fauna. Introduction of flora fauna ecosystem types in Mount Merbabu National Park is conducted by tour guides while on a trip or at posts alongside the hike route. According to

Sitohang's research (2008), Tuktung Siadong tourists have an average level of interest in tourism program activities during Visit Indonesia Year 2008 (61.6%). Tuktung Siadong tourist interest rate (61.6%) is smaller compared to Selo Hike Route (85%) interest rate towards available attraction. Selo Hike Route offers natural beauty and challenges that encourage adrenaline rush.

Expenses Characteristic. Information on Expense characteristics is required to view or estimate the expenses incurred during a trip. Iqbal's research (2006) states that travel expenses consist of transportation costs (travel and return trip), accommodation (lodging) costs while on site, consumption fee, entrance fee, and other expenses. Semet's research (2012) states that the travel expenses consist of transportation costs, accommodation costs, consumption costs and communication costs.

Table 3 – Expense Characteristic

No.	Expense Characteristic	Category	Percentage
1	Monthly Budget (/budget)	< IDR 500,000	55
		IDR 500,001 – 1,000,000	33
		IDR 1,000,001 – 1,500,000	12
2	Income (/budget)	< IDR 2,000,000	73
		IDR 2,000,001 – 5,000,000	24
		IDR 5,000,001 – 10,000,000	3

Source: Researcher Primary Data (2016).

Budget Characteristic. A number of expenses incurred by travelers reflect the tourist WTP (income) for recreational services. Individual assessment of a recreational visit is based on expectations of activity benefits (Wijayanti, 2009). Research result exhibit that tourist allotted monthly travel budget around <IDR 500,000 (55%), IDR 500,001-1,000,000 (33%), and IDR 1,000,001 -1,500,000 (12%). Tourists with <IDR 500,000 budgets are mostly students or university students. They generally drive from their residence to tourist destination less than 4 hours. Tourists with budget category IDR 500,001 -1,000,000 are students and workers residing in regions required more than 4 hours of travel. Therefore these tourists required to amass a certain amount of money prior to travel. Tourist with budget category IDR 1,000,001-1,500,000 generally resides in the region requiring more than 4 hours of travel. Nevertheless, they have relatives living in the nearby region which requires less than 4 hours of travel, therefore these tourist spends more than 2 days.

Average Mount Merbabu National Park tourist budget is <IDR 500,000 but more than IDR 120,000. This is reinforced by the assumption tourists' expenses for 2 days 1 night is at least of IDR 120,000. According to Prasetyo's research (2013), average tourism village tourist budget is IDR 103,333. According to Menuh (2016), backpacker tourists spend average budget costs incurred to travel to Bali around IDR 117,250 a 1 day. Backpacker tourist spending in Bali is 1.5 times greater compared to Selo Hike Route's tourist expenses which amount to IDR 60,000 per day. Balinese living cost is higher than the villagers in Selo district. According to Nahriya (2015), Umbul Songo tourist travel costs are in the range of IDR 100,000 – IDR 200,000 (43%) and IDR10,000 to IDR 50,000 (37%). Average Umbul Songo tourist's expenses are almost the same as Selo Hike Route Mount Merbabu National Park tourist which reached IDR 200,000 As average tourist visit the region around 2 to 5 times, it can be concluded that the tourists have a great satisfaction level of existing infrastructure services with prices set by the entrepreneur. This situation is in accordance with Ariyanto's statement (2005) that high prices in a tourist destination will affect tourist decision in making another trip to tourist attraction, therefore demand will be reduced and vice versa.

Income Characteristic. Information or tourist income is required to determine the category of tourist need. Therefore tourist destination manager can create travel program activities in accordance with the tourist range of income or willingness to pay. Research result exhibits that tourist obtained monthly income around <IDR 2,000,000 (73%), IDR 2,000,000 – 5,000,000 (24%), and IDR 5,000,001 – IDR 10,000,000 (3%) Income categories

<IDR 2,000,000 is dominated by students and university students, while income category> IDR 2,000,000 are workers. According to Premono (2008), TWA Punti Wood tourist have an average income of IDR 500,000 – IDR 800,000 as the tourist destination is a recreation type for the middle class. TWA Punti Wood income is lower compared to Selo Hike Route tourist income which averages at IDR 1,200,000 with the assumption of minimum income compared to living expenses in Central Java. According to Dwiputra (2013), the average monthly income of tourists in Mount Merapi generally less than IDR 700,000 as most of the tourist are students. On the other hand, Selo Hike Route tourists are generally students and workers.

Available Infrastructure Characteristic. Information on available infrastructure facilities needed to be able to see the satisfaction of tourists related services available sapras in the Mount Merbabu National Park Ecotourism. Tourism activities can be seen from supply and demand factors which is a component of the tourism market (Mulrphy, 1985). The supply is everything consumed or enjoyed by tourists formed by various factors. The result could be dubbed as the tourist product. Demand is a tourist and everything inherent in the self-generated tourists by various factors that then form what is called the image of tourism. (Mulrphy, 1985). The demand for tourism is the total number of people traveling to use tourism facilities and services in places far from their respective place of origin.

Table 4 – Facilities Assessment on Several Categories

No.	Facilities	Category	Percentage
1	Lodging	Camping ground	73
		Cottage	22
		Homestay	85
2	Facility	Eateries	79
		Place of Worship	44
		Parking Area	53
		Rest Area	74
		Toilet	65
		Shopping Area	39
3	Transport	Motorcycle	60
		Bus	14
		Public / Travel Car	67
4	Infrastructure	Main Road	78
		Branch Road	71
		Footpath	59
		Bridges	72
		Terminal	18

Source: Researcher Primary Data (2016).

Lodgings. The first infrastructure facilities are related to the accommodation services such as lodging. Research result exhibits the tourist peruse homestay (85%), camping ground (73%), and cottage (22%). Homestay receives many tourists who take advantage of this facility. Tourist can take a stop and rest in this facility on the way up to the summit. Those coming down from the mountain can use this facility to clean up. Some tourist uses this facility to grab some meal and leave their respective vehicles in homestay's parking area. Camping ground category is in several posts to the top of Mount Merbabu, which has been used by tourists to take a break. The cottage is possessed similar function to homestay but the foundation of the house is still grounded cement and wooden walls. The cottage is not often visited by tourists; this is due to the inadequate facilities available. According to Nahriyah (2015), tourist perception on lodging infrastructure in Umbul Songo Mount Merbabu National Park is at 3.5 (normal category). In contrast to the assessment of tourists visiting Selo Hike Route, they rate lodging facility at 85% or good category. Tourist in Selo Hike Route requires places to rest or stopover compared to those in Umbul Songo.

Facility. Facilities related to this research is parking and shopping facilities. Research result exhibits available facilities in Mount Merbabu National Park is food stalls (79%), toilets (65%), parking, worship, shopping facilities at 53%, 44%, 39% respectively. Food stalls

available are mostly locals setting up small eateries selling local cuisine. They mostly use their house's rooms and terrace to set up eateries. Rest areas provide thick mats, parking lots, places of worship. Shopping facility provided in local houses sells various climbing equipment, snacks, soft drinks, and souvenirs. According to Setiyorini (2012), tourist perception on the availability of facilities in Pekanbaru amounted to 17.64%. This perception is lower compared to Selo Hike Route's shopping facility (39%). The various facility provided by local community along Selo Hike Route in Mount Merbabu National Park would encourage the tourist to return as it provides comfort and places to rest.

Transport. The third infrastructure facilities are related to the transportation services such as travel car or motorcycle. Research result exhibits tourist perusing public car or travel (67%), motorcycle (60%), and bus (14%). Citizens around Mount Merbabu National Park have provided public cars such as travel with approximately 8 units, while inter-city buses are also available in the area around the Mount Merbabu National Park. According to Effendi (2015), most tourists visiting Tangkil Island in Lampung Province use private vehicles (97.14%). This is different from the tourist visiting Selo Hike Route which is dominated by travel transportation (67%). This fact indicates could potentially increase income for Selo District villagers.

Infrastructure. The fourth infrastructure facility is related to the existence of infrastructure facility that serves as a connecting road to the ecotourism area of Mount Merbabu National Park. The result of the analysis study based on the most infrastructure category is the main road of 78%, followed by bridges, branch roads, walkways, and terminals respectively 72%, 71%, 59%, 18%. There are several main roads around the area of the Mountain Merbabu National Park which is an improvement of Selo-Boyolali route. Selo Hike Route often experience landslides resulting from agricultural crops planting on the steep slopes. According to Putra (2013), farmers in Selo district Boyolali Regency cultivate the land without applying the terracing system, sloping cultivation pattern, still cultivate the land with more than 40% slope level and poor stands of perennials. The potential for landslides could potentially endanger visiting tourists. The nearest terminal available is in the area around Boyolali Regency. According to Setiyorini (2012), the accessibility of tourism in Pekanbaru city is 22.3% which is significantly lower than the accessibility of Selo Hike Route in Mount Merbabu National Park at 78%. This is because of access added value in Selo Hike Route TNGMb. The available access road to the foot of Merbabu Mountain to as high as ± 1600 mdpl. Access available to Selo High Route is two paths which went through Magelang and Boyolali City. Magelang City route to the Selo Hike Route in Mount Merbabu National Park Hike Route could be accessed from Yogyakarta - Magelang City - Ketep - Merbabu Mountain National Park area with distance ± 80 km using 4 wheels vehicles within ± 2 hours. While Boyolali City to Selo Hike Route in Mount Merbabu National Park Hike Route could be accessed from Solo - Boyolali - Selo - Mount Merbabu National Park area with a distance of ± 65 km using 4 wheel vehicles in ± 1 hour 30 minutes travel time.

CONCLUSION AND SUGGESTIONS

Tourists are generally males (86%) and women (14%). Tourists were generally 21-30 years of age (51%), and the lowest was at age > 30 years (1%). Characteristics based on the highest income are in category <IDR 2,000,000 (63%) and the lowest is IDR 0 to > IDR 10,000,000. The tourist generally come from Central Java (53%), and the lowest number of visitor come from South Sumatra (11%). Travel time are generally >> 4 hours at 50%, while the lowest is <2 hours (22%).

Tourist generally comes in 2-5 group members (40%) and the lowest is 1 person (8%). The tourist generally comes on holidays (75%) and the lowest was for business, culture and religion occasion (6%). Tourist generally comes around 2-5 times a year (53%) and there are few coming > 5 times a year (3%). Characteristics based on length of the visit were in 2 days (49%) and a small number stayed for 3 days (6%). Tourists are generally drawn by quiet and natural environment (61%), and a small number of them were drawn by low expenses

(20%). The most preferred activity-based characteristic was camping (85%) and the least preferred activity was the religious activity (13%).

Highest monthly budget are at <IDR 500.000 (55%) and the lowest is at IDR 1,000,001 -1,500,000 (12%). In general, tourist monthly income is <IDR 2,000,000 (73%) while a small number of them earning IDR 5,000,001 -10,000,000 (3%).

Most of tourists stay in homestay (85%) while a small number stayed in cottage (22%). The most facilities available are food stalls (79%) while the lowest facility available is shopping area (39%). The most commonly used transportation node used is car or travel vehicle/ rented cars (67%) and the least common transportation node used is bus (14%). Common infrastructure available is main road (78%) and the least common infrastructure available is terminal (18%).

From the research, several suggestions can be made as follows:

1. Factors that become a visiting decision for tourists include gender; age; income or income per month; origin; relatively short travel time; stay duration; purpose and activity; travel expenses; facilities and infrastructure available. These factors should be able to optimize in ecotourism development program.
2. Ecotourism development program should be able to present several agenda designs that are made based on the needs, effective time and tourist need. Suggested design of the agenda are: a) The promotion of natural tourism package is practical outbound activities (without tool aids) consisting of at least 2 kinds of activities accompanied by the provision of small merchandise for the winner of outbound participants in the form of goods symbolizing the regional culture, the implementation takes precedence on the eve of the national holiday, b) The promotion local culture and wisdom coinciding with national holidays.

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THE ROLE OF SUBAK (TRADITIONAL FARMERS INSTITUTION IN BALI) TO FARMERS' WELFARE AFTER THE CULTURAL LANDSCAPE OF SUBAK INSCRIBED AS A WORLD HERITAGE

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ABSTRACT

In 2012, the UNESCO inscribed cultural landscape of subak as a world heritage, so that farmers in the region are not permitted to convert their rice fields. This study aimed to analyze the role of government, and the institutional role of subak on the farmers' welfare in the area of subak which is inscribed as world heritage, namely in the Pakerisan watershed. The analysis technique used is descriptive analysis and inferential analysis by SEM-PLS approach, where the role of subak institution functioned as a moderator on the effect of the government's role to the farmers' welfare. The results show that the role of subak strengthens the government's role to the farmers' welfare in the area of landscape subak which is inscribed as world heritage. Government program to achieve sustainable agricultural development can synergy with subak as an institutional which is control the watering system, so that the program can be received and adopt by farmers.

KEY WORDS

Subak, government, farmers, welfare, institution.

The agricultural sector in Indonesia is dominant built by small-scale farmers. Small-scale agricultural impede farmers to increase their income, so it's difficult to get out of the cycle of poverty. Poor farming communities in addition to the narrow farming, is also caused by low productivity, limited infrastructure, low accessibility to capital, technology, information and markets, also low capacity of farmers.

Based on the orientation of agricultural development in Indonesia, which currently refers to the agribusiness system, the role of agricultural institutions, especially institutions of farmers, determine the success of agricultural development which leads to the farmers' welfare. Institutional farmers in rural contributing among other things to: acceleration of socio-economic development of farmers; accessibility of agricultural information; accessibility to capital, infrastructure, and markets; and the adoption of agricultural innovations. Moreover, the existence of institutional farmers will also be easier for the government and stakeholders (*stakeholders*) others to facilitate and provide reinforcement to the farmers.

The welfare of the farmers community is still far below expectations due to lifestyle subsistence farmers communities and believes that with adequate daily food needs they had been satisfied. Whereas the level of welfare in life can not be measured only by insufficient daily needs. The fundamental problem behind the problem of the farmers in Indonesia is the helplessness of farmers to negotiate the results of agricultural production (Anggriani, 2011). Farmers if farming individually will continue to be on the weak side for individual farmers, because they just manage small and scattered land size and ownership of capital is low (Sesbany, 2009). For that, the government needs to pay attention to the institutional strengthening through farmer groups with the aim of strengthening the bargaining position of farmers, both in the institutional and capital. Maintaining environmental sustainability (include ricefield) is one of eight goals of the Millenium Development Goals (Saskara and Marhaeni, 2017).

As long as it has a lot to form the farmers institutions in the village, but the study results from Agustian, et al. (2003); Purwanto et al. (2007); Syahyuti (2003); Zuraida and Rizal (1993) shows that institutional farmer in the village generally does not go well due to several causes. Farmer groups are generally established based on technical interest to facilitate

coordination if there is an activity or a government program, almost exclusively oriented programs alone, so less to ensure the sustainability and self-reliance groups. Participation and cohesiveness of the group members in group activities is relatively low. This is shown on the attendance of members in group meetings tend to be low, reaching only 50%. Management of productive activity is individual group members. The group as a forum for joint activities has been unable to become unifying container activities of members and member simultaneously fastener needs. This causes more prominent individual productive activities, whereas on the other hand the activities of group members faced with the difficult issues of capital, volatility and limited marketing channels. Formation and institutional development are not based on local social capital with the principle of local autonomy which will be achieved through the autonomy principles and empowerment. Formation and institutional development based on similar blue print approach, with little regard for local institutions that already exist, and the typical characteristics of the economic, social and political running. Formation and institutional development based on approaches that top-down lead to low participation. Institutional built limited only to strengthen the bonds of horizontal, rather than vertical, with a membership of people who have the same activity. Horizontal bond aims to establish cooperation in the next stage is expected to increase bargaining power. Willfully vertical bond market mechanism, which is difficult to reach government authorities. Eighth, provide guidance to the institutions that have formed tend to be individual and only to administrators only. Institutional development is more frequent use of structural lines, and weak from the development of its cultural aspects. The organizational structure previously built when the attitude of self-organization has not grown at the board and its members.

One of the institutions that grow and develop agriculture in Bali is *subak*. *Subak* during this activity mostly limited to setting irrigation system, but there is a desire to develop the activity of *subak* as an Economic Enterprise Institution of *subak* (LUES). *Subak* existed long ago in Bali based on the philosophy *Tri Hita Karana* or three harmonious relationship which is cause happiness, i.e. *Parahyangan* (harmonious relationship between man and God), *Pawongan* (harmonious relationships with fellow human beings), and *Palemahan* (harmonious relationship between humans and the environment). Is a living mechanism or the Balinese way of life, based on Hindu religion and culture of Bali, among them there is the ceremony of new rice farms start planting until harvest ceremony arrived?

Since June 29, 2012, *subak* became the core of agricultural activities in Bali set by the United Nations (UN) through one organization, namely the United Nations Educational, Scientific, and Cultural Organization (UNESCO) to World Heritage (Kemendikbud, 2013). Sulistyanto (2012) explained that Indonesia benefited from a site designated as world heritage. There are several area of landscape *subak* which is inscribed as world heritage as follows as: (1) Area of Ulun Danu Batur Temple; (2) Area of Batur Lake; (3) Area of landscape *subak* in Pakerisan watershed; (4) Area of landscape *subak* Catur Angga Batukaru; and (5) area of Taman Ayun Temple.

The establishment of *Subak* as world heritage included in the category of cultural landscape entitled "*The Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy*" (Cultural Landscape of Bali Province: System *subak* as manifestations of Philosophy *Tri Hita Karana*). There are two rules of world heritage to be used as guidelines in the management and utilization of world heritage region, that authenticity rules while maintaining the authenticity, and sustainability rules to ensure sustainability (Windia and Wiguna, 2013).

Subak's unique culture that has elements of cooperativeness and the concept of *Tri Hita Karana* is one factor that led to UNESCO recognizes *subak* as world heritage. *Subak Pulagan* is one of the world heritage drained by Pakerisan Watershed, located in the village of Tampaksiring of Gianyar Regency. Farmers in *Subak Pulagan* hope with the granting as world culture farmers and community around there will get benefits. Farmers are not too bother with the government's efforts in the establishment of *subak* as world heritage, as long as the degree to contribute and did not give a new burden in their lives (Sarita et al., 2013). The views of farmers in a flat tone as world heritage actually illustrates that the title does not

give a great influence on their lives. The government continues to aggressively fight for the awarding of the *subak* as one world heritage regardless of the condition of the farmers (Subagia, 2011).

The government through BULOG institution and vertical agencies below (DOLOG and Sub DOLOG) making floor price policy for dry grain milled and the ceiling price for rice which is essentially an investment in the market mechanism. The government will conduct market operations if the price of rice on the market rated far beyond the highest price they can harm consumers. Instead the government periodically fixes the base price of paddy; the farmers are motivated to increase its production. This policy is basically aimed at providing justice for consumers and producers.

Predicate as world heritage is expected to be a positive influence on common interests. When viewed from the economic side, the degree as world heritage is considered to increase the income and government attention to the situation of farmers in DAS Pakerisan, especially Subak Pulagan. There are consequences in addition to gains on WBD predicate, which is to preserve the *subak*. There are some expectations of farmers in Subak Pulagan after the status as world heritage can be categorized in three aspects, namely mindset, social and material aspects (Sarita, et al., 2013). Aspects mindset, namely the increasing awareness of the public at large in order to preserve water control system, have knowledge of world heritage and UNESCO, as well as the increasing attention of government to provide solutions to the problems experienced by farmers. The solutions are expected to include: (1) fund that will motivate the productivity of the land; (2) help repair irrigation networks and physical building water control system; (3) easily necessities of production and marketing of the crop; (4) *simakrama* or meeting with farmers in order to increase farmers' income; (5) training can improve the performance of the farmers; (6) a program of scholarships for the children of farmers who excel; and (7) improving and enhancing infrastructure such as roads in *subak*. Furthermore, the social aspect is no conflict between members' internal *subak* and among *subak* as institution, their solution to suppress land use, and the provision of the interaction space. Aspects of material that is free tax of ownership land or rice field in *subak*, subsidization of production facilities and other conveniences, as well as adequate irrigation water and irrigation networks and physical facilities cared for and treated. Related conveniences expected by farmers in Subak Pulagan, i.e.: (1) free of land ownership tax, which is considered as a form of appreciation to farmers of *subak* has been keeping his farm; (2) subsidies or help plant seeds and organic fertilizer; (3) obtain farm loans as capital in the next planting season; (4) ease of obtaining the means of production which correspond to a time trying farmer; (5) access information about the price of grain and rice; (6) collateral for the risk of crop failure or agricultural insurance.

Farmers should be able to optimize the role and functions of the organization as well as agricultural institutions in an effort to increase production, one of them to obtain financial support (credit) and social support (Jeckoniah et al., 2013). As described by Hayami and Vernon (1985) that in order to boost agricultural development in developing countries is very important to do the changes in the institutional elements and farming techniques.

Government plays an important role in agricultural development in Indonesia, in addition to other roles that have been attached to both regulatory role, the role of counterweight, and a supervisory role. Such development is one done through institutional development efforts of farmers to realize the welfare of farmers, considering that farmers were impressed as inferior profession. Issues of equity, marginality and poverty can be easily seen, both in terms of income, in terms of employment and in terms of effort. The classification society based on such aspects have a generally pyramid shape with the highest number is the group under which the weak, i.e. low income, low workers, small entrepreneurs and poor farmers.

Government will continue to improve agricultural productivity, due to decreased interest in becoming farmers, and land conversion will continue to happen in Bali. Increasing agricultural productivity is no longer a guarantee would provide a decent profit for the farmer if the absence of equality of income between farmers engaged in the on farm sub-system to agribusiness in the upstream and downstream sub-sector. Income equality can only be

achieved by increasing farmers' bargaining position. This can be done if the farmers do not work individually, but gather strength in an institution that is truly able to channel their aspirations. In an effort to raise awareness about the importance of farmers gathering strength together, then the government acting through agricultural extension services for institutional building. Farmers' institutions can only play if the optimal growth and development is controlled entirely by the farmers so that farmers have been subjected to the process (Jamal, 2008).

Therefore it is very important to conduct a study on the farmers' welfare in the world's heritage area, so that farmers do not perform conversion of agricultural land. The purpose of this study was to analyze the role of *subak* as a traditional farmers' institution in moderating the role of government to the farmers' welfare.

THEORETICAL REVIEW

The Role of Government. Adam Smith with his classic view in Hindriks et al. (2006) explains that the government has three main roles, namely: (1) maintenance of internal security and defense, (2) conduct judiciary, and (3) provide the goods that are not provided by the private sector. Hindriks et al. (2008) concluded that in the modern era, the role of government is more likely to be categorized in the following three areas:

- Role allocation, the government as a provider of public goods and services;
- The role of distribution, that the government seeks the empowerment of low income communities;
- Stabilizing role, which the government provides various types of subsidies.

Hindriks et al (2006) also outlines that the government has four main roles, namely:

- The role of the allocation of resources, including the determination of the absolute and relative size of government in the economy and the provision of public goods and social welfare services for the community;
- The role of regulators, including the preparation of regulations and procedures required by the community about the business to facilitate business activity and the right to private ownership of the role of social welfare, include policies that encourage social equality in the country concerned as taxation, social security (transfer payment) and the provision of some public goods mix for the community;
- The role of macroeconomic management, namely facilitating the general stability and economic prosperity of the country through policies to promote stable economic growth, full employment, low inflation, and balance of payments stability.

The role of government occurs as a result of the rights and obligations of the government to regulate the order of statehood. Broadly speaking, the government plays a role in the field of the allocation, distribution and stabilization.

Developing the farmers' institutional capacity through agricultural extension institution is the task of the government. Indonesian Law No. 16 Year 2006 about the Counseling System of Agriculture, Fisheries and Forestry, describe the task in the Section 11 (1) c, described: facilitating the development of institutional and community forums for the main actors and entrepreneurs to develop their business and provide feedback to local governments. Also described in Section 13 (1) e, described: to develop and facilitate institutional and forum activities for the main actors and businessmen.

Farmers' institution is the means at the same institutional goals of agricultural extension (Albrecht, et al., 1989 and Mosher, 1991), so its presence is indispensable. Condition usually arises from institutional dilemma of extension due to the bias of interest. Agricultural extension, both government employees and private sector, is a member or staff of the institution who appointed him not infrequently official interest-oriented rather than the interests of farmers in their work. In connection with this situation, the strengthening of the institutional capacity of farmers require institutional commitment to education, especially institutional government agricultural extension, to carry out tasks that should (Anantayu, 2011).

The government has a wide range of different roles in various fields of development and life of the nation state. In agriculture, the government can be considered to have a role and function in terms of regulation, guidance, control, supervision, and a counterweight.

The Role of Subak as Traditional Farmers Institution in Bali. Institutions are believed by most economists could be a source of efficiency and economic progress (Yustika, 2010). Related application of new institutional economics (NIE) on agricultural policy research in developing countries, Kherallah and Kirsten (2001) gave some examples of cases that use institutional economics approach to the analysis, as well as an opportunity to address some of the economic problems difficult to solve by the neoclassical approach. Some examples of cases referred to, that is:

- Contract farming and vertical linkages of farmers (contract farming and other vertical linkages), can be analyzed with the theory component of institutional economics is the theory of the contract (contract theory) to analyze the problems of contractual relations in agriculture in developing countries; relations agency (agency relationships: principle agent problems and incomplete contracts) to analyze the relationship between the farmer (agent) and coordinator of the vertical/integrator/agribusiness (the principal); transaction costs to analyze the transaction costs which occur on agricultural contracts;
- Cooperation and farmers organizations (Cooperatives and other farmer organization), can be analyzed by component institutional theory, namely the right of ownership (property rights) and collective action, transaction costs, and organizational/contract theory, can provide information on the design of the organization and co-operation in order to avoid failure;
- The behavior and performance of the merchant (trader's behavior and performance), can be analyzed by the component of institutional theory that transaction costs and social capital that can be used to answer a related question: whether the response of institutional and choice of trading contracts is efficient?; whether the rules of government in cutting transaction costs and reduce market risks?; institutional how needed to develop market efficiency?
- Access to agricultural inputs and rural credit markets, can be analyzed by components, namely institutional theory and the theory of agency information that is used to identify the type of institutions that could expand credit for rural households.
- Institutions that can provide risk management and market information, by analyzing the necessary institutional types (including formal and informal) to manage market risk in developing countries.

Farmers institutional are farmers institutions which are in the region of locality (local institution), which is a membership organization or cooperation, the farmers who are members of group cooperation (Uphoff, 1986). Further described by Anantayu (2011) that these institutions include a broad understanding that in addition includes the notion of farmers' organizations, as well as the 'rules' (role of the game) or rules of behavior that determine the patterns of action and social relations, as well as social cohesion which is a concrete manifestation of the institution.

Esman and Uphoff in Garkovich (1989) states that the farmer institution established basically have several roles, namely: (1) inter organizational task to mediate between society and the state; (b) resource tasks includes the mobilization of local resources (labor, capital, materials, information) and its management in achieving community goals; (3) service tasks includes a service request that describes the purpose of development or coordination request of local communities; and (4) extra organizational tasks requires the existence of local demand for bureaucracy or outside the community against bureaucratic organization or organizations outside the community against interference by outside agencies.

Agricultural institutions that do not support is one of the problems in the management of agricultural resources, where institutional referred to one of them is institutional farmers themselves. Therefore, Anantayu (2011) expressed the need for institutional development of farmers that is based on the premise that: (1) the farming process requires human resource-backed resilient infrastructure, equipment, credit and so forth; (2) institutional development of

farmers is more complicated than the management of natural resources as it requires supporting factors and units of production; (3) agricultural activities cover three series, namely the preparation of input, transforming inputs into products with labor and management effort, and assign the output to be valuable; (4) agricultural activities require support in the form of policies and institutions of the central and local levels; and (5) the complexity of the farm, which includes the business units and institutions, difficult to achieve optimal conditions.

Resource management by farmers regarding farm input arrangement, production processes, as well as the output so as to achieve high productivity. Own agricultural business activities include input, output and output (Uphoff, 1986). In the management of the factors of production, the production process, until the necessary institutional agricultural processing farmers. Agribusiness activities will be successful if farmers have sufficient capacity. In order to achieve optimum productivity and efficiency of farmers have collectively doing business together. It is necessary for the understanding of an institution at the farm level. Traditionally, farmers have been developing community institutions from generation to generation, but the challenges of the times demand a more appropriate institution to meet the needs of farming communities. Effective farmer institutions is expected to support agricultural development. Anantayu (2011) confirms that at the farm level necessary institutions as: (1) a vehicle for education; (2) commercial activities and organization of agricultural resources; (3) management of public property; (4) defend the collective interests; and (5) others.

Mosher (1991) believes that the joint activities (group action or cooperation) by farmers is a factor facilitating agricultural development. Activities along with togetherness is necessary if it would be more effective in achieving the desired goals together. Furthermore Anantayu (2011) explains that the institutional presence of farmers is based on the cooperation can be done by farmers manage agricultural resources, among others: (1) processing, in order to more quickly, efficiently and cheaply; (2) marketing, will convince buyers on the quality and improve the bargaining position of farmers; (3) buying, in order to get a cheaper price; (4) machine sharing, will lower the cost of purchase of the tool; (5) cooperative services, to provide services for the mutual benefit so as to improve the welfare of members; (6) cooperative banks; (7) cooperative farming, will obtain higher profits and uniformity of products produced; and (8) multi-purpose cooperatives, which was developed according to the same interests of farmers.

Farmers' welfare. Welfare theory by Albert and Hannel (2005) can be generally classified into three types, namely classical utilitarian, neoclassical welfare theory, and new contractarian approach. Classical utilitarian approach emphasizes that the satisfaction or pleasure a person can be measured and grow. The principle of an individual is to improve as much as possible the level of welfare, while for the public is that the increase in the welfare of the group is the main principle. While the approach of neoclassical welfare theory explaining that welfare functions is a function of all individual satisfaction. Furthermore, the developing and emerging welfare theory approach contractarian new that elevates the maximum freedom in individual lives, with an emphasis that will maximize individual freedom to pursue their concept of goods and services without any interference.

According to the theory, as quoted Euis Sunarti (2007), described that the family will function when running a sustainable and adaptive function, function of the goal attachment, integration function and latency function. Adaptation functions that the acquisition of resources from outside the family to meet the needs of the family. Goal attachment functions. is to determine the family goal. Integration function is maintained integration and solidarity involve these elements to control and maintain the system and to prevent a major disruption in the family system. Latency functions whereby stored energy is distributed within the family system. As the four functions do not run in the family farmer, the family welfare will be difficult to materialize.

Welfare of farm families is the goal of agricultural development and national development. In simple terms it can be said that the family farmer is said to be improved if the basic needs of its members. Welfare is closely related to the functioning of the family.

FRAMEWORK AND HYPOTHESES

Institutional capacity allegedly moderating the role of government relations for the farmers' welfare. Institutional organization and poor farmers is one of the causes of poverty of farmers. Anantayu (2011) explains that the institutional presence of farmers for farmers are becoming a necessity to improve their quality of life, dignity and status. Most businesses in Indonesia are farmers and small businessmen that when assembled in a strong economic organization will benefit (welfare).

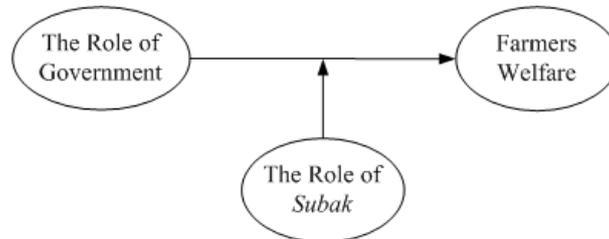


Figure 1 – Conceptual Framework

Within facilitate various government programs to farmers, as well as strengthen the bargaining position of farmers who have limited land area, the farmer needs to have institutional farmer. Anantayu research results (2011) states that the institutional presence of farmers for farmers has become a necessity to improve their quality of life, the dignity of farmers. Agricultural counseling needs to be designed to give content on strengthening the capacity of the individual farmer as well strengthening the institutional capacity of farmers.

Further, Listyati et al. (2014) explained that related to institutional strengthening to increase bargaining position of farmers in cocoa marketing system mentioned that government in institutional system of farmer group combination model is giving capital aid, role in provision of agricultural extension and agricultural production suggestion.

The ultimate goal of various efforts to increase agriculture, one of which is to realize the welfare of farmers. Scholar and Munir (2008) explained that there are several indicators to assess farmers' welfare, such as the share of agricultural income, the share of food expenditure, the purchasing power of farm households, the level of food security, and the exchange rate of farmers.

Based on the conceptual framework of the research, there are two hypotheses in this study, namely: (1) the role of government have significant positive effect on the farmers' welfare; and (2) The role of *subak* are influential moderate the role of government to the farmers' welfare.

METHODS OF RESEARCH

In this study, there are three types of variables: 1) the role of government as exogenous variables, 2) the role of *subak* as moderating variable, and 3) farmers' welfare as endogenous variables. Perceptions of respondents were measured with instruments that had been prepared in the form of the statement, it is valid and reliable, rated using a Likerts Scale. Range of rating ranging are from strongly disagree to strongly agree with the statement filed with detail range of values as follows: SS = strongly agree (5), S = agree (4), CS = quite agree (3), TS = disagree (2), and STS = strongly disagree (1).

Data Analysis Technique. This study uses a quantitative analytical approach. Quantitative analysis is using descriptive statistics and regression analysis with moderating variable, as shown in the following equation:

$$FW = \beta_0 + \beta_1 RG + \beta_2 RS + \beta_3 RG RS + \varepsilon \quad (1)$$

Where: FW = farmers' welfare; RG = the role of government; RS = the role of *subak*; β_0 , β_1 , β_2 , β_3 = parameter; ε = error.

RESULTS OF STUDY

Descriptive Analysis. Ferdinand (2012) states that to be able to interpret a perceptual index can use the three box method criteria. Further Ferdinand (2012) also provides a range of three box method following criteria: 10% - 40% expressed as bad/low appreciation; 41% - 70% expressed as moderate appreciation; and 71% - 100% expressed as good/high appreciation. The result of descriptive analysis to the latent variables of the role of government, the role of subak, and farmers' welfare in Subak Pulagan, Pakerisan Watershed is describes as Table 1.

Table 1 – Perception index of research variable

Variable / Indicator	Perception Index
1. Perception index of variable "the role of government"	63.26
Regulate function	61.70
Coaching/educate function	65.92
Control function	65.20
Supervise function	61.52
Balancing function	61.97
2. Perception index of variable "the role of <i>subak</i> "	77.49
Clarity the purpose of <i>subak</i> in the implementation of <i>Tri Hita Karana</i>	81.35
The role and function of <i>subak</i> to set the farming system	80.18
Agricultural innovation of <i>subak</i> institution	68.43
Sustainability of <i>subak</i> institution	80.00
3. Perception index of variable "farmers' welfare"	66.14
Farmers income structure	64.84
Farmers expenditure of primary needs/food	61.70
Purchasing power of farmers family	64.66
Food sovereignty	73.36

Table 2 – Outer model evaluation (loading factor and cronbach alpha value)

Variable / Indicator Symbol	Loading Factor	Cronbach Alpha	Result
The role of government (RG)		0.877	Reliable
RG1	0.862		Valid
RG2	0.787		Valid
RG3	0.818		Valid
RG4	0.791		Valid
RG5	0.837		Valid
The role of subak (RS)		0.924	Reliable
RS1	0.890		Valid
RS2	0.913		Valid
RS3	0.893		Valid
RS4	0.912		Valid
Farmers' welfare (FW)		0.928	Reliable
FW1	0.911		Valid
FW2	0.905		Valid
FW3	0.920		Valid
FW4	0.893		Valid

Respondents' perceptions index for the role of government variable is moderate. Variable of the role of subak with high perception index, while the perception index for farmers' welfare variables is moderate.

Outer Model Evaluation (Measurement Model). Test data quality obtained from the use of research instruments can be evaluated through the validity test and reliability test. Rules of thumb used are loading factors that must be greater than or equal to 0.40 (Hair et al, 1998). Test reliability by looking at the cronbach alpha coefficients. Reliability value seen from cronbach alpha of each research instrument (≥ 0.60 considered reliable).

Inferential Analysis. Analysis of direct influence and direct influence with moderation can be seen from the analysis of path coefficient value shown in Table 3.

Table 3 – Path Coefficient

Construct	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STERR)	P Values
The role of government → Farmers' welfare	0.109	0.107	0.063	1.735	0.083
The role of <i>subak</i> → Farmers' welfare	-0.057	-0.060	0.056	1.020	0.308
The role of government * The role of <i>subak</i> → Farmers' welfare	0.084	0.084	0.022	3.878	0.000

Analysis of the influence of the role of government to the farmers' welfare does not show a significant relationship as shown in Table 3 with regression coefficient of 0.109. The null hypothesis is accepted because the p-value of 0.083 is greater than the 0.05 significance standard. This means that the role of the government directly has no significant effect to the farmers' welfare.

Table 3 shows that the regression coefficient between the role of *subak* to farmers' welfare with coefficient of -0.057 with t-statistic 1,020 and p-value 0.308 so it is not significant. The regression coefficient between the role of government interaction with the role of *subak* to farmers' welfare is 0,084 with t-statistic 3,878 and p-value 0,000 which means the relationship is significant.

RESULTS AND DISCUSSION

The result of data analysis shows that the influence of the role of government to the farmers' welfare with moderation of the role of *subak* is positive and significant. Given that: (1) the role of the government directly has no significant effect on the farmers' welfare; (2) directly, the role of *subak* has no significant effect on the farmers' welfare; and (3) the interaction of the role of government and the role of *subak* directly has a positive and significant effect on the welfare of farmers, the the role of *subak* is pure moderator.

An institutional or community organization generally grows and develops in an ecological system where the community lives and conducts various productive activities (Suradisastra dan Dariah, 2013). One example of agricultural institutions according to Suradisastra dan Dariah (2013) is a *subak* organization in Bali that at the beginning of its history relied on water as a binding resource for agricultural activities. Subak organization as a socio-cultural organization that regulates the irrigation system since hundreds of years, can be explained that subak organization formed from harmonious relationships among fellow farmers (Suasih, et al., 2017). The binder has now grown further, and its binding resources no longer have to be water or water sources, but also dry land (which develops into *subak abian* in Bali), other social, economic, and technical resources. The modern *subak* is now a cooperative institution operated communally through its member representatives, and supporting resources. Subak development is also growing, including the financial resources derived from tourism and hospitality activities, as well as the resources of other non-agricultural sectors.

The success of agricultural development, especially food crop agriculture in Bali, can not be separated from the role of *subak* institutions. *Subak* is an organization that regulates irrigation of rice fields in Bali, even Darmanta, et al. (2013) defines subak as a Balinese customary law community that regulates in the field of regulating water for paddy fields from a water source within a region. Furthermore, Sutawan, et al. in Pitana (1993) defines a subak as a wetland farmer's organization obtaining irrigation water from a common source and possessing one or more *Bedugul temples* (for worshiping *Dewi Sri*, the manifestation of God as a fertility goddess), and having the freedom to manage his own household as well as in In relation to outsiders.

Darmanta, et al. (2013) explains that subak is essentially an autonomous institution of indigenous peoples, meaning that subak communities have the freedom to manage their own

households and in relation to outsiders. However, the autonomous nature of subak does not make a subak institution as a sterile institution without any interaction with other government agencies. Currently, there are various government programs that utilize subak as the target of the program.

Suyatna in Pitana (1993) mentions that traditional groups in Bali, especially *banjar* and *subak*, play an important role in supporting development programs. Thus it is very natural that the government utilize this institution to participate in the success of programs launched by the government.

Subak as a farmer institution that has been handed down from generation to generation has the strength and potential to be developed not only limited to regulate the irrigation system, but also in the field of economic business. When the issue to develop *subak* as economic institution (not just to control watering system), Subak Pulagan has been able to become a farmer institution that plays an important role in off-farm process or after harvest. Where Subak Pulagan has been able to accommodate the agricultural products of its farmers as members. Most of the other farmers institutions have not been able to accommodate the farmers' harvest, even if they do economic business, only limited to sales infrastructure for rice production to farmers.

Many advantages obtained by farmers when subak has been able to accommodate the harvest of farmers in Subak Pulagan. First, the farmers does not have to think about where to sell the crop to get a reasonable price. Second, in the process of harvesting and transporting, farmers can get help from other subak members. Third, farmers are exempted from the cost of performing rituals at the subak level.

The establishment of a philosophical agricultural agency with the aim to solve problems faced by farmers but can not be solved individually. The formation of farmer groups is a consolidated agriculture process, so it can produce optimally and efficiently. This is because that in consolidated farming in farmer groups, the procurement of production facilities and the sale of results can be done together. The objective is that the volume of production facilities purchased and the volume of yields sold become larger, so the procurement cost per unit of means and marketing per unit of yield becomes lower.

Farmer group itself is one effort to empower farmers to improve productivity, income, and welfare of farmers. Strictly, Nuryanti and Swastika (2011) mentioned that the existence of farmer groups is very important, where government and private parties can cooperate with member farmers by establishing partnerships. This means that cooperation can be in any form is expected to leverage the active role of the group to improve the level of economy or welfare of farmer group members.

The role of government to ensure the sustainability of food security, the government through research and development agencies can develop agricultural technology, in the hope of improving and streamlining the agricultural sector. Prabowo (2010) explains that technology development also includes aspects of institutional engineering, which encourage the development of institutional agribusiness and institutional in rural areas. Service to peasants in the reform era should be carried out in good and clean governance corridors, following the following principles: (a) empowering in the sense of improving the ability to analyze, make decisions, build access to resources and production facilities, and solve problems faced; (b) partipative in producing appropriate technology, which involves farmers from planning, implementation, monitoring, evaluation and improvement; (c) provide an opportunity for the community to provide input; and (d) establishing good communication and cooperation between governments with various components of society to complement each other for mutual progress. Therefore, further Achmad (2005) mentions that the system that has been designed by the government for a centralized and instructive pattern, in this era of autonomy and globalization needs to be adjusted to a participatory pattern. This participatory pattern is one of them by empowering farmers to be active in developing farmer institutions. Through optimizing the role of government by empowering farmer institutions, it is expected to realize food security and farmers' welfare.

CONCLUSION

In relation to the role of government, it is recommended that the government review the provision of direct assistance to individual farmers. Government programs should be through the introduction of new innovations in agriculture. In addition, the government program should also be through the farmer institution considering the farming in Bali Province, including in Subak Pulagan generally done on a small scale so that the provision of assistance will be more optimal if through an institution, so it can be used together for the progress and welfare of local farmers.

Agricultural institutions, especially *subak*, are advised to increase their capabilities. Considering that most government programs are conducted by involving farmers' institutions, not directly to individual farmers. Government in conducting activities in *subak*, especially located in world heritage area, should cooperative with *subak*. The role of *subak* institutions is very central and will also support the implementation of various government programs.

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THE EFFECT OF ETHICAL LEADERSHIP AND ORGANIZATIONAL CULTURE ON WORK ETHOS AND ITS IMPACT ON ORGANIZATIONAL PERFORMANCE: A CASE STUDY IN REGENCY DEPARTMENT OF LANDS OF LOMBOK ISLAND, INDONESIA

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ABSTRACT

A leader should be concerned about the influence of his leadership on working culture and environment of the employees. These responsibilities include the ethical responsibility of treating employees with mutual respect, service, fairness, and honesty. This study aimed to determine the influence of ethical leadership and organizational culture on the work ethos and its impact on the performance of the organization on the Department of Lands. A quantitative research method was applied in this study. The sample of research are 69 respondents with cluster sampling method. The research was conducted at National Department of Lands in Lombok Island. The data analysis technique used is SEM using SmartPLS 3.0 program. The results showed that ethical leadership has no significant effect on work ethos, while organizational culture has a significant effect on work ethos. Furthermore, both work ethos and ethical leadership had a significant effect on organizational performance, organizational culture has a significant effect on organizational performance.

KEY WORDS

Ethical leadership, organizational culture, work ethos, organizational performance, lands.

The public demand for the improvement of the performance of the national bureaucracy has become a common agenda at the moment. The level of public confidence in government organizations in terms of public service delivery has had a significant impact on the process of service delivery itself. The GDS 2002 (Governance and Decentralization) survey in 20 Indonesian Provinces conducted by Dwiyanto (2006) shows the results of government organizations in administering public services, the time required to complete a service is often not clearly regulated. Public service office unlikely to estimate the required time complete a service. It is explained that because of the reluctance to determine clearly the time required to complete a task, the public service providers' act arbitrarily when serving the community. As a result, service time uncertainty tends to occur almost in all types of public services. In addition, according to the Financial and Development Supervisory Agency quoted by Bastaman (2010), a disappointment of the society over the administration of the government is induced by dissatisfaction with the accountability of state organizers for the trust given to them.

According to Slamet (2009) performance management system is a process used to identify, encourage, measure, evaluate, improve and reward the worker's performance. Organizations require continuous improvement in performance in order to survive and well developed, moreover human resources are a major asset for transformation and innovation in organizations (Asgharpoor, 2006 in Kelidbari et al., 2016). Success or failure of performance achieved by an organization, influenced by the level of staff performance, both individually and in groups. Organizational performance, in this case, public organization, becomes an important role as a benchmark of the success of a government organization in providing services to the citizens. In order to achieve that success, organizational performance is mainly influenced by various factors including ethical leadership, organizational culture, and work ethos. In the aspect of leadership, motivation is one of fundamental value so those affect members of the organization in the aspects of attitudes, behaviors, perceptions, and values associated with the work ethos and organizational

culture. Leadership is one of the determinants of organizational success. Leadership shifts from time to time and is contextually based on the social, political and cultural developments prevailing in its era. None of the best leadership styles are universally applicable to all situations and environments.

According to Sutrisno (2009), the role of leaders in an organization is very crucial because it is leaders who will move and direct the organization in an effort to achieve organizational goals. In managing their authority, leaders are expected to make changes in others because of their power and control towards the staff. The leader also should have more concern to the influence of his leadership on the working culture of the staff. These responsibilities include the ethical responsibility of treating employees with mutual respect, service, fairness, and honesty (Northouse, 2013). Based on data from the National Land Agency (abbreviated: BPN) shows the high performance of the Department of Lands in Lombok Island, West Nusa Tenggara Province which is 94% of the settlement of task. However, the realization of job completion based on the target is not enough because there are still many public complaints regarding the quality of services such as the length of the certification process time, the high cost, and the absence of transparency in cost and time.

As explained above, this study evaluates some previous research results as well as explore some novelty. First, assessing the ethical leadership variables and organizational culture on work ethos and its impact on organizational performance. This is because previous studies have shown the different results. Second, one of the variables used in this study is ethical leadership, where the use of ethical leadership variables in some previous studies is still limited. Third, some previous studies have shown that ethical leadership, organizational culture, and work ethos have a direct impact on performance, while a number of research results prove that ethical leadership, organizational culture has no direct impact on performance but through mediation or moderation variables, such as job satisfaction (Karnama & Tafreshi, 2015), employee productivity (Azwan *et al.*, 2015), self-efficacy and organizational identity (Kelidbari *et al.*, 2016). The research that will be conducted aims to observe the influence of ethical leadership and organizational culture on performance through work ethos. Therefore, the purpose of this research is to comprehend the impact of ethical leadership and organizational culture on performance through work ethos at Department of Lands in Lombok Island, West Nusa Tenggara.

LITERATURE REVIEW

Ethical Leadership. Ethical leadership is the process of influencing employees through the broader values, principles, and beliefs of the constraints of accepted norms in organizational behavior (Buble, 2012). In relational concepts, this ethical leadership is built in and through social interaction with staff. Indicators of ethical leadership by Northouse (2013) including mutual respects, serving others, objectivity, honesty, and establish the community.

According to Gomez, Balkin and Cardy cited in Alshammari *et al.* (2015) argue that the distinctive pattern of ethical leadership is to embody and articulate organizational goals and values. Leaders in this context symbolize morals and narrate ethics to show the practical basis of ethical values. The ethical leader should be a role model for the ethical manner of business in society by putting aside unethical behavior for personal satisfaction and taking full responsibility for improper decisions that can affect the organization. Leadership ethics shows a normative response to personal action as well as interpersonal relationships within the organization. The role of ethical leadership in influencing performance roots into motivating, inspiring and considerate.

Ethical leadership will affect employees with values, principles, and beliefs. With its authority, leaders will always be honest, work with their employees, and assist in resolving conflicts by implementing changes relating to the value of workers and the value of organizations and communities in the workplace (Heifetz in Northouse, 2013). Furthermore, ethical leaders can be regarded as people who have strong moral, good character, trustworthy and caring for others (Trevino & Brown, 2004).

Aslan and Sendogdu (2012), in his research, found that ethical leadership has a positive and significant relationship with ethical values in the company and individual behavior that indicate the work ethos. The leaders of the Department of Lands in Lombok Island of West Nusa Tenggara Province are trying to build communication with subordinates while motivating their subordinates to uphold the value of honesty, obeying laws and legal policies, respecting others and being responsible for the work. These efforts were conducted to establish positive working behaviors and a great commitment to improving the performance. Here is the hypothesis formulation:

H₁: Ethical leadership has a significant effect on work ethos.

Organizational Culture. Organizational culture as a beliefs and expectations shared by members of the organization (Schwartz & Davis cited in Wirawan, 2007). Such beliefs and expectations produce strong values that shape the behavior of individual and group members of the organization. Organizational culture tends to be a set of assumptions that direct interpretation and action within the organization with appropriate behavioral depictions for different positions (Ravasi & Schultz, 2006). Organizational culture includes involvement, consistency, adaptability, and mission (Denison, 2000).

In practice organizational culture has several types and types (Quinn & McGrath cited in Uha, 2013), namely:

a. Rational culture is the process of individual information (clarification of the objectives of logic considerations, guidance devices) is assumed as tools for the performance objectives shown (efficient, productivity, and profit or impact).

b. The ideological culture of intuitive information processes (from deep knowledge, opinion, and innovation) is assumed as a means of revitalization (outside support, resource support, and growth).

c. The consensus culture of collective information processes (discussion, participation, and consensus) is assumed as a means of cohesion (climate, morale, and teamwork).

d. A hierarchical culture of formal information processes (documents, compilations, and evaluations) is assumed as a means for sustainability goals (stability, control, and coordination).

Based on research conducted by Semedi (2009), it was found that there is a strong correlation between organizational culture and work ethos, which shows the stronger the organizational culture the higher the application of professional work ethos. At the place of study, the achievement of task completion and service target is closely related to the work ethic of its employees to work better in achieving organizational goals. Hence can be formulated hypothesis:

H₂: Organizational culture has a significant effect on work ethos.

Work Ethos. Sinamo (2005) states that work ethos is a set of positive work behaviors rooted in eternal consciousness, fundamental beliefs, accompanied by a total commitment to an integral work paradigm. Indicators of work ethos proposed by Sinamo (2005) include: work is mercy, work is trust, work is a call, work is actualization, work is worship, work is art, work is an honor, work is service. The study by Nizam et al. (2016) states that there is a significant relationship between work ethic and work performance. Work ethos proved to be one of the factors of a good employee performance predictor. This validates that the work ethos will result in high staff performance and demonstrate that the application of work ethos can help the organization achieve overall good performance. Some employees at the Department of Land in Lombok Island, West Nusa Tenggara Province often work exceed the working hours to complete their tasks related to land services, although they are not rewarded for the excess hours.

H₃: Work ethos has a significant effect on organizational performance.

Performance. Mahsun (2006), explained that performance is a description of the implementation of an activity/ program/policy in order to achieve the goals, objectives, mission, and vision of the organization contained in strategic planning of an organization. According to Mahsun (2006), government performance indicators include input indicators, processes, outputs, outcomes, benefits and impacts.

Several studies have been conducted on the role of ethical leaders in achieving performance improvement. The study conducted by Toor & Ofori (2009) states that ethical leadership mediates roles in the relationship between organizational culture and performance. The ethical leader will create a comfortable, effective working environment, and crucially lead to improved organizational performance. In addition, ethical leadership has a positive effect on employee performance (Resick et al., 2006). Here is the fourth hypothesis:

H₄: Ethical leadership has a significant effect on organizational performance.

In research conducted Shahzad et al., (2012) states that organizational culture has a positive impact on employee performance. Research shows that every individual in the organization has a different culture and first tries to adjust to the norms and values of the organization. Application of culture organizations is helping employees to do their work efficiently and effectively. The cultural form that is implemented in the research place is a sense of togetherness and the desire to provide satisfaction for the services provided to the community, encouraging employees to work better again leading to higher organizational performance.

H₅: Organization culture has a significant effect on organizational performance.

METHODS OF RESEARCH

This research is quantitative research. Based on the level of explanation, this study includes the type of associative research that investigates the correlation between two or more variables (Sugiyono, 2014). This research was conducted at Department of Lands in Lombok Island with 69 respondents. The variables found in this study are ethical leadership variables measured by using indicators developed by Northouse (2013), organizational culture variables are measured using indicators developed by Wirawan (2007), work ethic variables are measured using indicators developed by Sinamo (2005), and organizational performance variables were measured using indicators developed by Dwiyanto (2012).

Weights on each variable using a five-level scale (Likert scale) consisting of strongly agree, agree, simply, disagree, and strongly disagree. The result of validity test of research instrument by using correlation technique of Product Moment Pearson shows that the correlation coefficient value for each item statement is greater than 0.3 ($r > 0.3$) so it is included the valid category. Similarly, the instrument reliability test results show that all items in the research variables are reliable because Cronbach's Alpha is above 0.6. Data analysis in this research using Partial Least Square (PLS).

RESULTS AND DISCUSSION

In accordance with the hypothesis that has been formulated, then in this study analysis of inferential statistical data measured by using software SmartPLS 3.0.

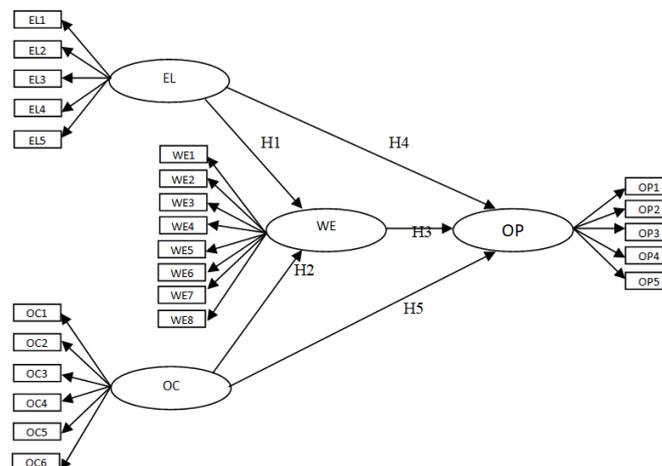


Figure 1 – Hypothesis model

Based on model measurement (outermodel) that is test of discriminant validity and composite reliability (CR) show all variable is valid (value $\sqrt{\text{AVE}} > 0,5$) and reliable (value of $\text{CR} > 0,7$).

Table 1 – Value of Average Variance Extract (AVE) and Composite Reliability (CR)
Latent Variable Research

Variables	$\sqrt{\text{AVE}}$	CR	Information
Ethical Leadership (EL)	0,838	0,921	Valid & Reliable
Organizational Culture (OC)	0,788	0,907	Valid & Reliable
Work Ethos (WE)	0,780	0,926	Valid & Reliable
Organizational Performance (OP)	0,758	0,870	Valid & Reliable

Source: Data that have been processed by using SmartPLS 3.0

Measurement of structural model (inner model) is used to know the relationship between construct, significance value and R-Square research model.

Table 2 – R-square value of dependent construct

Variable	R-Square
Work Ethos	0,203
Organizational Performance	0,523

Source: Data that have been processed by using SmartPLS 3.0

Table 2 shows that the value of R-square for construct work ethos is 0.203, which means that ethical leadership and organizational culture variables influence work ethos by 20.3%, while 79.7% is influenced by other un-researched variables. The value of R-square for the construct of organizational performance is 0.523 which means that ethical leadership variable, organizational culture and work ethos influence organizational performance of 52.3%.

Hypothesis testing was done to find out whether the proposed hypothesis is rejected or accepted by comparing the t-statistic value generated from the bootstrapping process in the PLS with the t-table value. If t-statistic value is higher than t-table (1.96) with the significance of the 5% level (one tailed), the hypothesis is accepted, but if t-statistic value is lower, the hypothesis is rejected.

Table 3 – Hypothesis Testing Result

Relationship between Variables	Path Coefficient	T-statistics	P value	Conclusion
Ethical Leadership → Work Ethos	0,233	1,558	0,120	rejected
Organizational Culture → Work Ethos	0,321	2,381	0,018	accepted
Work Ethos → Organizational Performance	0,406	4,227	0,000	accepted
Ethical Leadership → Organizational Performance	0,326	3,195	0,001	accepted
Organizational Culture → Organizational Performance	0,215	2,611	0,005	accepted

Source: Data that have been processed by using SmartPLS 3.0

Based on Table 3, the effect of ethical leadership on work ethos with coefficient = 0,233 and p-value = 0,120, it means that ethical leadership has no significant effect on work ethos. Thus hypothesis 1 is rejected. This shows that ethical leadership has no significant effect on improving work ethos of employees. The ethical leaders in the Land Office not have a significant effect on the improvement of the work ethos of employees, or it can be said that the strong work ethos of employees in the Land Office is not caused by the attitude and behavior of the existing leadership in there, but caused by other factors such as religious (spirituality), cultural, socio-political factors, geographical environment, education, economic structure, individual intrinsic motivation. This study is in line with research conducted by Gustinsia et al., (2012). But this research different with research of Aslan & Sendogdu (2012) which states that ethical leadership has a significant effect on the work ethos.

The effect of organizational culture on work ethos with coefficient = 0,321 and p-value = 0,018, it means that organizational culture have significant effect to work ethos. Thus hypothesis 2 is accepted. This shows that the stronger the organizational culture will be the higher the work ethos. Characteristics of organizational culture dimension that exist in Land Office in Lombok Island which have positive and significant impact to work ethos is achieved. It also shows that the stronger the organizational culture in the Land Office in Lombok Island so that the work ethos of employees becomes stronger as well. This research is in line with research conducted by Wirawan (2009), and Prasetyanto (2014).

The effect of work ethos on organizational performance with coefficient = 0,406 and p-value = 0,000, it means that work ethos have significant effect to organizational performance. Thus hypothesis 3 is accepted. This shows the stronger work ethos of employees, the higher the organizational performance. The human resources (HR) in the Land Office is not proportional to the size of the annual target for the program / activity of land services on the Lombok island, but the lack of existing human resources still managed to improve the productivity of the Land Office in providing services to the community. The high productivity can be realized with the employees who are ready to work wholeheartedly, responsible, creative and have a strong work ethos. This study is in line with research conducted by Sugiyanto and Sutanto (2010), Nasution (2016), and Salahudin et al., (2016).

The effect of ethical leadership on organizational performance with coefficient = 0.326 and p-value = 0.001, meaning that ethical leadership has significant effect on organizational performance. Thus hypothesis 4 is accepted. This shows that the more ethical a leader in an organization, the higher the performance of the organization. Result of analysis test supported by descriptive data of result of research indicate that most of the leadership in Regency / City Land Service Office in Lombok Island have ethics shown by attitude of respecting and appreciating employees, caring and objective in giving opportunity to employees to move forward and developed, be honest and consider employees. In detail the success of leadership in showing ethical behavior is so successful in improving organizational performance. This study is in line with research conducted by Bello (2012), Sabir et al., (2012), Cheraghi et al. (2015), Karnama & Tafresi (2015), and Alshammari et al. (2016).

The effect of organizational culture on organizational performance with coefficient = 0,215 and p-value = 0,005, meaning that organizational culture has significant effect on organizational performance. Thus hypothesis 5 is accepted. This shows that the stronger the organizational culture the higher the organization's performance. The results of the analysis test supported by the descriptive data of the research results indicate that the employees of the Regency / City Land Office in Lombok Island have a strong organizational culture, where the organizational culture has increased the intimacy and togetherness of the Land Office employees to improve productivity through the achievement of physical realization and budget by optimizing the source power that exists in the implementation of programs / activities. In addition, the intimacy and togetherness is also evident from the efforts of employees in improving the quality of service, responsiveness, responsibility and accountability in accordance with community expectations. The results of this study are in line with research by Nga'ang'a and Nyongesa (2012), Shahzad et al. (2012), Ahmed and Shafiq (2014), and Nikpour (2017).

CONCLUSION

The influence of ethical leadership on the Land Office on Lombok Island is not very influence in improving work ethos of employees. The strong work ethos of employees is caused by the existing organizational culture, but the leaders need to consider other aspects that can enhance work ethos such as to organizing religious activities in the form of training or lectures. Religious activities are conducted to provide an understanding to employees about the importance of being honest, responsible, loyal, and able to refrain from corruption, collusion and nepotism (abbreviated: KKN).

Organizational performance is included in the high category. The high organizational performance is caused by the success of the leader in showing the mutual respect, honest, fair, willingness to serve and their success in building togetherness with the employees to realize the priority programs. In addition to leadership, organizational culture is also an important factor that encourages the high organizational performance of Land Office in Lombok Island, the employees understand the vision and mission of the organization that is implemented in the annual programs.

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REVENUE SHARING REFORMULATION IN INDONESIA TAXATION: RESOLVING VERTICAL FISCAL INEQUALITY?

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ABSTRACT

Revenue Sharing Reformulation (RSR) serves to reduce Vertical Fiscal Imbalance (VFI). The current RSR Indonesia formula is still unable to reduce VFI, so there needs to be a RSR reformulation. This research uses quantitative approach method to measure VFI before and after RSR reformulation. RSR Reformulation was obtained through literature review, then simulation was performed. The results of this study indicate that RSR reformulation considering fiscal needs, fiscal capacity, and regional efforts. The variables used in the RSR reformulation are population, equal share, poverty, land area, fiscal responsibility, personal emolument factor, and development factor.

KEY WORDS

Share revenue, Vertical Fiscal Imbalance, policy, taxation, simulation.

Fiscal decentralization is expected to improve public services and encourage public sector efficiency, economic growth and community welfare (M. Khusaini, 2008). In the fiscal decentralization policy of the central government providing transfers to the regions, one component is tax revenue and non-tax revenue sharing (DBH). DBH is used as an instrument to reduce vertical fiscal imbalance aimed at balancing, equal distribution of income and level of public service between regions with varying economic capacity (Bird & Tarasov, 2004).

However, in reality VFI Indonesia is still high. This is supported by research by Hamid (2005) and Shah & Qureshi (1994). Kenworthy & McCall (2008) argue that inequality can be caused by the unequal market mechanism and tax policies and unfair distribution. Then Hamid (2005) argues that vertical fiscal imbalances in Indonesia occur because the central government controls the main taxes, so that local controlled taxes are insufficient to fund local activities. Provision of development financing in the regions can impact on deteriorating regional services and disrupt regional and national stability (Bird & Vaillancourt, 2000).

On the other hand, DBH mechanism still leaves various problems. These problems include the lack of attention to external cost components, especially DBH SDA (Saragih, 2011 in Kurniawati, 2012). Meanwhile, Kuncoro 2012 (in the Constitutional Court (2013) and Anom (2012)) suggests that in the legal process and the DBH mechanism is not based on academic and empirical considerations, only bargaining and political agreement. Therefore, there needs to be a revision related to these laws because it is "out of date" (Siddik, 2012 in the Constitutional Court, 2013 and Anom, 2012).

The weakness of transparency in data access and DBH calculation mechanism is also one of the problems in the implementation of DBH governance (Mustofa (2010), Khoirunurrofik, 2002). In fact, NRG & UNDP (2016) stated that local governments should be able to verify the value of revenues collected from mines and oil fields in their jurisdictions, thus encouraging trust among levels of government, or in some cases will ensure a strong peace. The transfer mechanisms that have been undertaken have not fully addressed development issues reflected in some macro indicators such as widening income gaps (Khusaini, 2014). Provinces that receive high DBH are mostly scattered in provinces that do have adequate natural resources such as East Kalimantan or National Industry supporters such as DKI, East Java and West Java. The relatively rich areas are developing faster than the relatively poor regions due to the good economic recovery program (World Bank, 2007).

Based on the above explanation, this study aims to analyze the condition of vertical fiscal imbalances in Indonesia starting from differences in characteristics, resources and fiscal needs of each region in Indonesia. the reconstruction of the financial sector through revenue and expenditure policies at the government level is also required to minimize this imbalance.

LITERATURE REVIEW

Vertical Fiscal Imbalance. Vertical fiscal imbalance or Vertical Fiscal Imbalance (VFI) shows the difference in fiscal capacity and fiscal needs between central government and lower levels of government (Suyanto, 2017). Vertical fiscal inequality is closely linked to decentralized spending responsibilities with centralized funding (Ruggeri & Howard, 2000). VIF occurs because of the distribution of revenue sources between the central and provincial governments that are inconsistent with the distribution of responsibility for expenditures (Anonymous, 2001).

According to Zuker (2002), VIF is a product of vertical political imbalance. Therefore, to reduce the occurrence of the case, the Commonwealth takes some of the functions of the State, but it faces political and legal obstacles (Webb, 2002). In addition, the distribution of revenue sources between central and local governments is inconsistent with the costs of meeting the constitutional spending responsibilities, resulting in poorer equity (Bird & Tarasov, 2002). The view (Hilaire-St, 2005), which states that Vertical Fiscal Inequality (VFI) is the asymmetry of increasing revenue between the provincial government and the federal government, which in turn changes the view of optimal division of responsibilities among them.

The purpose of fiscal decentralization is the presence of vertical fiscal equity between central and autonomous governments. So that local government are able to perform public services more optimally. In fact, not a few areas earn public services whereas local government is the spearhead of service (Khusaini, 2016). To that end, the central government provides a portion of revenue derived from the region, redistributed to regions under certain laws and formulas (Langoday, 2006). Meanwhile, VFI emerges because of the disparity between capacity and fiscal needs between the central and regional levels. Karpowicz (2012) identifies VFI as an obstacle to regional accountability and better regional fiscal performance. Vertical fiscal imbalances occur when decentralization spends income for the region so that local governments must rely on transfer funds (Khusaini, 2017). Eyraud & Lusinyan (2013) confirmed that the increase in fiscal imbalances is related to the weakening of the fiscal balance of the central government. This allows for increased deficits which often require balance funds. It is important to develop fiscal adjustment strategies, especially changes in intergovernmental relationships as part of fiscal reforms.

Fund Transfer Criteria. Intergovernmental fiscal transfers can basically be grouped as follows (Kustianto and Yansekardias, 2001):

1. Transfer allocation model that takes into account fiscal gap (fiscal gap);
2. Transfer allocation model based on fiscal capacity considerations between regions;
3. Transfer allocation models are based on various "needs" indicators;
4. Transfer allocation model based on equality of per capita tax base.

Meanwhile, Ananda (2002) mentions three basic ways of determining the amount of funds that need to be distributed to regions through intergovernmental fiscal transfers, namely: (a) by a fixed percentage of central government revenues; (b) adheres to an ad hoc basis, ie, in the same manner as for other types of budgetary expenditures; and (c) on the basis of a 'formula mechanism', ie, by a percentage of certain regional expenditures paid by the center, or in connection with some general characteristics of the receiving area.

According to Sidik et al. (2002) there are several criteria related to the design of central transfers to regions, namely autonomy, adequate income, equity, transparent and stable, simplicity and incentives. Accordingly, NRG1 and UNDP (2016) state that the revenue-sharing formula should be simple and enforceable, achieve national consensus on the formula, codify the formula in law, transparent and formalize independent oversight. The

revenue-sharing formula should be simple, easy to implement in order to avoid complaints from the region. In addition, the formula prepared must be accepted by all parties including political groups and ethnic groups masyarakat and other stakeholders. Any revenue-sharing formula must be codified / formalized through other laws or regulations, this will increase certainty and the government and the public will get the strengths and weaknesses of the formula based on the public debate that took place. One thing that is important is that the revenue-sharing formula must be transparent and can be audited at any time and can be published to the public, this may lead to a higher level of confidence in the central government.

Meanwhile, Yilmaz (2003) conveyed that the criteria for intergovernmental transfer system are, among others, the adequacy and buoyancy, predictability, simplicity and transparency of intergovernmental transfers, transfer system and its impact on allocative efficiency, interregional equity and incentive, structure for sound fiscal management and subnational resource mobilization. Yilmaz's thinking is in line with what Schroeder and Smoke (2002) suggest that the design criteria for transfer are: adequacy and growth; predictability, simplicity and transparency; allocative efficiency; equity (in terms of redistribution); and incentives for sound fiscal management and subnational resource mobilization.

Devas (2002) also conveyed that the transfer design must meet the minimum criteria of incentives, predictability, and transparency. The transfer formula should encourage efforts to increase local revenue, meaning that with increasing income, the greater the transfer received by the region. with the existence of transparency is expected to avoid political manipulation, nepotism, and corruption. When earnings can be predicted more precisely then local governments will be more flexible and accurate in determining shopping activities. Meanwhile, according to Otieno, et.al. (2014), the criteria of transfer allocation among them are consistency, fairness, and transparency. Furthermore, Jun Ma (1997) stated that the effective transfer system must meet the criteria of adequacy of revenue, Local tax effort and expenditure control, equity, transparency and stability.

Based on the opinion of the experts above it appears that the criteria of a good design transfer formula must at least meet the elements such as revenue adequacy, equity, predictability, simplicity and transparency, and provide incentive for the region in encouraging efforts to increase local revenue.

METHODS OF RESEARCH

Analysis of Vertical Fiscal Imbalance. With reference to the model of Bird & Tarasov (2002), the model of calculating the vertical fiscal imbalance is formulated as follows:

$$CVI_1 = \frac{(Revenue_{SH})_{SNG}}{(Expenditure+Lending)_{SNG}} \quad (1)$$

$$CVI_2 = \frac{(Revenue_{SH})_{SNG} + (IGNB)_{SNG}}{(Expenditure+Lending)_{SNG}} \quad (2)$$

$$CVI_3 = 1 - \left(\frac{(Revenue+Grants)_{SNG} - (Revenue_{SH})_{SNG} - (IGNB)_{SNG}}{(Expenditure+Lending)_{SNG}} \right) \quad (3)$$

Where:

- CVII: share of government transfers to provincial government expenditures / spending;
- CVIII: share of government transfers and local lending to provincial government expenditures / spending);
- CVIII: Share provincial spending that is not discover by PAD province;
- CVI: Vertical Imbalance Coefficient;
- TRsp: Special Allocation Fund (DAK);
- TRbp: General Allocation Fund (DAU);
- B: Regional Loans;
- EXP: Total Spending of APBD;

IGNB: Reception of Loans;
 REV: Regional Income;
 REVSH: Profit Sharing (BHP) and Non-Tax Revenue (BHBP);
 SNG: Sub National Government (Province).

According to Hamid (2005) and Shah & Qureshi (1994) the magnitude of the vertical fiscal imbalance of a region can be seen based on the value of the fiscal coefficient coefficient of magnitude between 0 and 1. The smaller the coefficient value, the higher fiscal imbalance that means that regions are increasingly dependent on the central government. On the contrary, the greater the coefficient of fiscal inequality shows the more independent of these regions in financing their expenditure.

To analyze the DBH reformulation, this study refers to the formulation of the Kenyan DBH Commission on Revenue Allocation (CRA) (2010). The formula used as follows:

$$CA_{it} = \beta_1(PN)_{it} + \beta_2(ES)_{it} + \beta_3(PI)_{it} + \beta_4(LA)_{it} + \beta_5(FR)_{it} + \beta_6(PE)_{it} + \beta_7(DF)_{it} \quad (4)$$

Where: CA_{it} = Regional revenue share i at time t ; β_1-7 = weighted value of independent variable 1-7; PN_{it} = The population of region i at time t ; ES_{it} = Local allocation fund i at time t ; PI_{it} = Local poverty rate i at time t ; LA_{it} = Area of area i at time t ; FR_{it} = fiscal capacity area i at time t ; PE_{it} = Regional bureaucratic Reform Index i at time t ; DF_{it} = Regional economic growth i at time t .

DBH reformulation simulation for 3 (three) years, ie 2014-2015. DBH Reformulation is done on DBH allocation in 34 Provinces in Indonesia.

RESULTS AND DISCUSSION

Reformulation of Calculation Model of Allocation of Revenue Sharing Funds. Reformulation of DBH DBH Commission on Revenue Allocation (CRA) Kenya (2010). The formula consists of population, equal share, poverty, land area, fiscal responsibility, personal emolument factor, and development factor variables. In this study population in proxy with population, equal share in proxy with General Allocation Fund (DAU), poverty in proxy with poverty level, land area in proxy with province area, fiscal responsibility in proxy with fiscal capacity of area, personal emolument factor in proxies with reform index of bureaucracy, and development factor in proxies with regional economic growth.

By incorporating the weight of each indicator on the Kenyan DBH Commission on Revenue Allocation (CRA) formula (2010), the DBH formula used is as follows:

$$CA_{it} = 0.45(PN)_{it} + 0.25(ES)_{it} + 0.18(PI)_{it} + 0.08(LA)_{it} + 0.01(FR)_{it} + 0.02(PE)_{it} + 0.01(DF)_{it} \quad (5)$$

The results of the DBH reformulation simulations are shown in Tables 1-3. Based on tables it appears that most provinces in Indonesia have increased the allocation of DBH between DBH allocations prior to DBH reformulation and after DBH reformulation. Provinces with decreasing DBH allocations after DBH reformulation include DKI Jakarta, East Kalimantan, West Papua, Bengkulu, North Kalimantan and West Sulawesi provinces. This indicates that the allocation of DBH for this is greater than the fiscal needs.

Vertical Balance Coefficient Analysis. The coefficient of vertical imbalance becomes a statistical tool to test how the impact of the Revenue Sharing Fundamentals on vertical fiscal inequality (between the central government and the province). In table 4 and the figure below will show how the effect of an Opsen-based Revenue Sharing Fund is based on the coefficient vertical imbalance (CVI). CVI is divided into 3 categories that are tailored to the interpretation of the results the researcher wants. The following is a CVI of Opsen-based simulation based on the 2014-2016 databases.

Table 1 – DBH Allocation after the Reformulation of 2014 (in Rp.)

Province	2014	
	PRE	POST
Aceh	243.817.733.171	432.785.116.183
Sumatera Utara	384.886.615.036	1.104.209.489.074
Sumatera Barat	120.406.149.738	432.307.976.560
Riau	741.712.126.770	811.274.887.906
Jambi	214.378.292.652	320.311.450.520
Sumatera Selatan	217.383.227.805	605.672.270.177
Bengkulu	588.115.602.332	168.017.025.066
Lampung	58.390.026.118	568.675.253.236
Kep. Bangka Belitung	47.737.911.516	141.002.981.956
Kep. Riau	132.297.043.006	267.552.985.146
DKI Jakarta	9.825.434.652.218	7.818.558.625.842
Jawa Barat	1.041.739.075.589	3.759.560.112.644
Jawa Tengah	421.254.688.102	2.479.105.578.105
DI Yogyakarta	486.306.319.893	366.152.992.682
Jawa Timur	73.381.554.834	3.610.572.473.701
Banten	760.997.185.126	1.224.786.923.461
Bali	135.273.309.976	730.106.078.763
Nusa Tenggara Barat	144.426.264.056	278.767.423.792
Nusa Tenggara Timur	173.057.248.380	190.827.688.158
Kalimantan Barat	721.617.879.858	405.404.958.564
Kalimantan Tengah	114.176.825.644	313.428.192.398
Kalimantan Selatan	71.198.759.489	724.678.071.241
Kalimantan Timur	24.022.171.499	1.665.780.205.302
Kalimantan Utara	64.558.232.571	29.585.008.077
Sulawesi Utara	224.114.881.952	234.421.603.792
Sulawesi Tengah	31.051.432.939	206.154.203.184
Sulawesi Selatan	61.346.662.077	757.284.543.851
Sulawesi Tenggara	138.130.142.153	149.986.872.864
Gorontalo	78.553.863.181	70.480.598.912
Sulawesi Barat	68.256.133.324	55.659.482.045
Maluku	65.205.426.907	106.357.219.888
Maluku Utara	50.992.412.326	50.765.465.334
Papua Barat	255.968.711.949	76.669.132.677
Papua	191.072.264.083	236.234.003.493
Agregat	17.971.260.826.270	30.393.136.894.593

Table 2 – DBH Allocation after Reformulation of 2015 (in Rp.)

Province	2015	
	Pre	Post
Aceh	247.001.807.000	493.014.668.457
Sumatera Utara	430.178.194.000	1.220.976.704.142
Sumatera Barat	123.593.339.000	469.185.685.312
Riau	983.884.146.000	869.242.987.681
Jambi	250.573.279.000	310.307.344.686
Sumatera Selatan	251.648.070.000	633.835.431.125
Bengkulu	735.550.727.000	175.326.004.950
Lampung	52.979.709.000	561.839.519.125
Kep. Bangka Belitung	48.635.402.000	142.951.353.860
Kep. Riau	140.030.974.000	253.307.491.632
DKI Jakarta	11.137.137.741.000	8.421.548.850.397
Jawa Barat	1.222.867.463.000	4.008.235.933.155
Jawa Tengah	477.971.597.000	2.726.222.463.286
DI Yogyakarta	562.677.524.000	398.279.438.065
Jawa Timur	88.891.974.000	3.850.680.259.973
Banten	889.745.339.000	1.243.189.912.806
Bali	146.371.666.000	760.326.514.237
Nusa Tenggara Barat	162.557.373.000	343.167.713.701
Nusa Tenggara Timur	191.604.578.000	220.581.326.934
Kalimantan Barat	796.833.654.000	425.637.827.614
Kalimantan Tengah	108.341.438.000	293.743.478.339
Kalimantan Selatan	80.720.820.000	671.228.911.030
Kalimantan Timur	25.912.346.000	1.237.542.032.472
Kalimantan Utara	72.066.087.000	92.511.916.845
Sulawesi Utara	215.217.353.000	253.237.615.988
Sulawesi Tengah	31.288.379.000	226.235.649.685
Sulawesi Selatan	62.901.682.000	817.711.122.562
Sulawesi Tenggara	157.066.506.000	166.770.993.074
Gorontalo	83.285.625.000	72.389.836.241
Sulawesi Barat	79.735.761.000	68.377.417.423
Maluku	64.766.758.000	97.704.164.625
Maluku Utara	64.275.409.000	59.014.114.698
Papua Barat	289.457.583.000	80.700.282.734
Papua	249.473.710.000	228.228.664.947
Agregat	20.525.244.013.000	31.893.053.631.801

Table 3 – DBH Allocation after the Reformulation of 2016 (in Rp.)

Province	2016	
	PRE	POST
Aceh	165.964.037.278	508.001.268.200
Sumatera Utara	396.953.644.620	1.238.714.814.526
Sumatera Barat	106.809.651.027	491.039.653.419
Riau	753.011.357.350	777.666.987.168
Jambi	88.019.169.067	308.380.249.975
Sumatera Selatan	171.339.035.792	636.548.210.998
Bengkulu	572.194.707.779	182.890.093.159
Lampung	45.452.388.896	592.202.922.072
Kep. Bangka Belitung	39.221.088.709	143.565.243.102
Kep. Riau	118.542.210.584	269.828.347.566
DKI Jakarta	11.850.246.587.258	9.222.009.046.490
Jawa Barat	1.254.900.933.191	4.260.745.550.829
Jawa Tengah	507.766.983.540	2.885.273.438.072
DI Yogyakarta	574.798.422.726	418.439.045.385
Jawa Timur	86.718.849.679	3.954.467.072.807
Banten	859.468.926.540	1.365.794.685.771
Bali	122.975.577.435	760.300.715.327
Nusa Tenggara Barat	137.186.495.789	339.963.323.951
Nusa Tenggara Timur	155.606.923.823	248.799.045.196
Kalimantan Barat	625.645.249.816	416.086.985.357
Kalimantan Tengah	75.076.441.150	289.577.141.783
Kalimantan Selatan	82.133.475.258	625.020.245.853
Kalimantan Timur	16.687.888.649	1.007.343.090.191
Kalimantan Utara	56.663.362.810	126.989.182.618
Sulawesi Utara	184.066.815.501	245.262.262.519
Sulawesi Tengah	20.090.882.895	234.774.387.054
Sulawesi Selatan	49.754.885.686	862.394.309.535
Sulawesi Tenggara	154.215.298.447	186.188.687.426
Gorontalo	78.287.823.809	77.806.348.551
Sulawesi Barat	60.690.412.906	69.422.138.149
Maluku	48.691.247.502	116.552.871.920
Maluku Utara	43.755.414.090	70.038.067.682
Papua Barat	251.325.818.344	84.703.235.254
Papua	157.682.484.745	254.934.818.033
Agregat	19.911.944.492.691	33.271.723.485.940

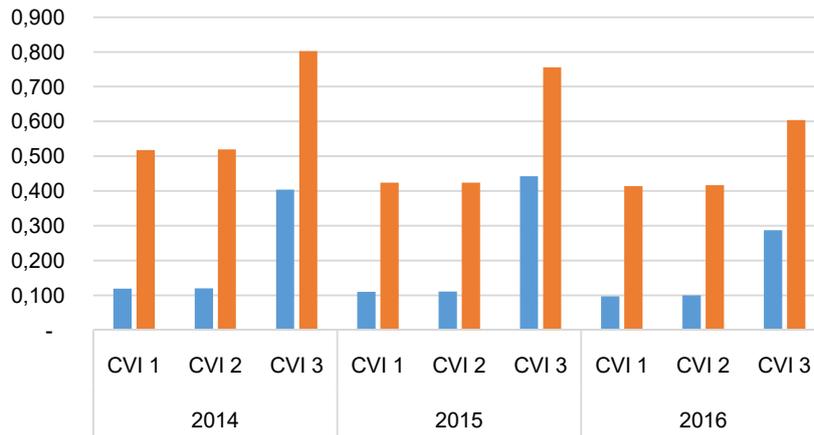
Source: Data Processed 2017.

Table 4 – Change of Coefficient Vertical Imbalance (CVI) DBH Reformulation of 2014-2016

CVI	2014		2015		2016	
	Pre	Post	Pre	Post	Pre	Post
CVI ₁	0,119	0,518	0,110	0,424	0,097	0,414
CVI ₂	0,120	0,519	0,111	0,424	0,100	0,416
CVI ₃	0,403	0,802	0,442	0,756	0,287	0,604

Source: Data Processed 2017.

Figure 1 – Change of Coefficient Vertical Imbalance (CVI) After Aggregate of Tax and Natural Resources Reformulation of 2014-2016



Source: Data Processed 2017.

Based on table 4 and figure 1 shows that the simulation results of allocation of Fund-Based Funds transfers based on DBH reformulation have a positive effect on the change of vertical fiscal inequality coefficient. Overall both CVI1 CVI2, and CVI3 indicate an increase in coefficient numbers.

In conclusion, the values of CVI1 CVI2, as well as CVI3 have increased. This means that the operationalization of DBH reformulation is relatively good and has a positive effect. This can be demonstrated by the result of increasing DBH reformulation. The DBH Reformulation encourages increased transfers to the regions so as to increase the fiscal capacity of the regions.

CONCLUSION

The result of DBH reformulation shows that vertical fiscal imbalance is decreasing. This is demonstrated by the CVI ratio before and after the DBH reformulation, in which CVI after DBH reformulation becomes better. In line with that, the DBH reformulation is able to increase the fiscal capacity of the regions, as indicated by the increase of DBH allocation after the DBH reformulation simulation.

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FINANCIAL PERFORMANCE AND FACTORS INFLUENCING ITS BANKING COMPANIES IN INDONESIA STOCK EXCHANGE

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ABSTRACT

This study is about the influence of corporate governance on corporate performance in Indonesia. Data from 20 banking companies in Indonesia Stock Exchange for the period of five years 2011-2016 conducted a panel data analysis with modeling by conducting Chow and Hausman tests. The results show that the influence of corporate governance (institutional share ownership, independent comers, audit committee and board of directors), non performing loan and loan to deposit ratio have an effect on company performance measure. in particular, the findings indicate that non performing loans have a negative and significant effect on return on assets, and audit committee variables have a positive and significant impact on return on equity, whereas while non performing loan and loan to deposit ratio have the negative and significant impact on return on equity. Other variables have no significant effect on return on assets and return on equity.

KEY WORDS

Banking companies, good corporate governance, non performing loan, loan to deposit ratio, return on assets, return on equity.

In mid-1997 the concept of Good Corporate Governance (GCG) began to be widely discussed in Asia, including Indonesia, and Indonesia is currently trying to improve the economy after several crisis times. The cause of the crisis is the existence of the fragility of fundamental economic (fundamental economic fragility) and one of them is the failure in the implementation of Good Corporate Governance derived from the system of weak legal framework, accounting standards, and auditing standards are not consistent, poor banking practices, supervision board of ineffective directors, as well as a lack of consideration of the rights of minority shareholders. In general, practitioners and academics also agree that one of the main causes of the crisis is the awareness of the importance of implementing GCG in the still low companies in Indonesia (CGPI Report 2004). Through the application of appropriate corporate governance / GCG principles, a company can increase profits, enhance competitiveness, credibility, and reputation and improve relationships with stakeholders such as investors, business partners, employees, customers, and so on.

In 1999 under the National Committee on Corporate Governance or the "National Committee on Policy (KNKCG) issued guidelines for the implementation of GCG This GCG Guideline, which contains the basic principles and guidelines of GCG implementation supported by three interconnected pillars, namely the state and its instruments as regulators , business world as market participants, and society as users of business products and services The principle of GCG that is transparency, accountability, responsibility, independence and fairness and equity is needed to achieve sustainability of the company by taking into account the stakeholders.

The forms of failure of the implementation of Good Corporate Governance are the scale of Indonesia's corruption rate is 8.85 (eight points eighty-five) close to 10 (under) and below India (scale 9.15). (survey Political and Economic Risk Consultancy / PERC, 2014). While the implementation of governance in Indonesia in 2014 according to PERC survey is 8.85 (eight points eighty-five). And the score is the same as the scale of the practice of corruption in which the score is close to 10 (ten), meaning that the company's management in Indonesia is worse compared to Southeast Asian countries such as Singapore, Malaysia, Philippines, and Thailand. Political Economic Risk Consultancy (PERC) is a rating agency

conduciveness of the public bureaucracy to the business world based in Hongkong and it publishes its research results every year.

In the background of the economic crisis and entering the era of globalization, the demand for the use of the concept of Good Corporate Governance (GCG) is an urgent need that cannot be negotiable anymore. Transparency and disclosure are one of the principles of good corporate governance (GCG) which is currently under the spotlight of the public. At this time the public or the public need information disclosure, especially for companies that have to go public, and the information is financial and nonfinancial information. Financial information published by the company to the public, including balance sheets, income statements, changes in equity, cash flow statement and notes to financial statements. Nonfinancial information is an integral part of the financial information and aims to increase the value added to the benefits of financial statements. Nonfinancial information is focused on the potential risk disclosure issues facing the company today and why management takes that risk.

According to Shleiver and Vishny (1997), said that Good Corporate Governance is a set of mechanisms that protect minority parties (outside investors/minority shareholders) from takeovers by managers and shareholders (insider) with emphasis on legal mechanisms. Besides, good Corporate Governance helps to create conducive and accountable relationships among elements within the company (Board of Commissioners, Board of Directors and shareholders) in order to improve financial performance. In relation to Good Corporate Governance (GCG) issues and their relationship with company performance, many of them are discussed by researchers: Aimen Ghaffar (2014) revealed that corporate governance variables have significant relationship with bank profitability, Adebayo Mudashiru et al (2014) there is a significant relationship between corporate governance and organizational performance, Shehu Usman Hassan and Abubakar Ahmed (2012) and Progress Shungu et al (2014) stated that corporate governance significantly influences company performance. While Pooja Gupta and Aarti Mehta Sharma (2014) argue that corporate governance has a limited impact on corporate performance and Gadi Dung Paul et al (2015), states there is no significant relationship between corporate governance and bank financial performance.

In addition, the company's financial performance, particularly non-performing loan (NPL) and Loan to Deposit Ratio (LDR) companies can affect financial performance. According to Dhanuskodi Rengasamy (2014), NPLs can have a positive, negative and no significant impact on ROA and the results of Lucy Mumbi Chege and Julius Bichanga (2017) research shows that nonperforming loans have a significant effect on the financial performance projected by ROA. Meanwhile, Tariku Kolcha Balango and Madhusudhana Rao K. (2017) stated that NPLs have a significant and negative effect on ROA.

Joseph Femi Adebisi and Okike Benjamin Matthew (2015), there is no relationship between Non-performing Loans (NPLs) and Return on Assets (ROA) of Nigeria Banks, meaning the company's assets are not affected by the NPL level. Meanwhile, shareholder wealth maximization is shown by the relationship between Non Performing Loan (NPL) and Return on Equity (ROE).

Based on the above explanation, there are several fundamental issues that form the basis of this research:

- What is the relationship between institutional share ownership, independent board of commissioner and audit committee, the board of corrections, NPL and LDR together with company performance?
- How is the relationship between institutional share ownership and company performance?
- What is the relationship between the independent Board of Commissioners and the performance of the company?
- How is the relationship between the Audit Committee and the performance of the company?
- How is the relationship between NPL and company performance?
- What is the relationship between LDR and company performance?

LITERATURE REVIEW

Good Corporate Governance (GCG). Companies based on GCG principles must balance between sound business objectives and risk management as well as the company should strive to develop a conducive corporate culture. This cultural determination starts from a commitment by the Board of Directors (Board of Commissioners and Board of Directors), which is the key to the successful implementation of GCG.

Good corporate governance requires timely and accurate communication to a number of aspects of the company's business operations and corporate governance centered on the principles of accountability, transparency, fairness, and responsibility in corporate management. According to Rogers (2008), corporate governance is how to build credibility, transparency, accountability and an effective information channel to drive company performance. And the opinion of Keasey et al. (Francis Ofunya Afande, 2015), corporate governance encompasses the structures, processes, cultures, and systems that spawned the success of organizational operations. Meanwhile, Maria Inez S and Tuntun S Zen (2015), stated that Good Corporate Governance (GCG) is a system to control and establish the company, which can be seen from the mechanism of the relationship among all parties related to the company.

Thus the corporate governance system can be considered as a mechanism to establish ownership and control of the organization. In the assessment of GCG implementation, the Indonesian Institute of Good Corporate Governance (IICG) uses IICG's Corporate Governance Index (IICG) Perception Index that emphasizes aspects of Commitment, Transparency, Accountability, Responsibility, Independence, Justice, Competence, Leadership, Strategy, Ethics, and Knowledge Management.

The implementation of GCG in the banking industry in Indonesia is contained in several provisions, namely:

1. Regulation of the Otoritas Jasa Keuangan No.55/POJK.03/2016 on the application of Good Corporate Governance for Commercial Banks;
2. Circular Letter of Bank Indonesia No. 15/15/DPNP/dated 29 April 2013 regarding the Implementation of Good Corporate Governance of Commercial Banks;
3. Circular Letter of the Otoritas Jasa Keuangan No. 32/SEOJK.04/2015 on Open Corporate Governance. Regulation of the Otoritas Jasa Keuangan No. 17/POJK.03/2014 on the Implementation of Integrated Risk Management for Financial Conglomeration;
4. Regulation of the Otoritas Jasa Keuangan No.18/POJK.03/2014 on the Implementation of Integrated Governance for Financial Conglomeration;
5. Regulation of the Otoritas Jasa Keuangan No.8/POJK.04/2015 on the Issuer's Web Site or Public Company. Regulation of the Otoritas Jasa Keuangan No.31/POJK.04/2015 on Disclosure of Information or Material Facts by Issuers or Public Companies;
6. Regulation of the Otoritas Jasa Keuangan No.55/POJK.03/2015 on the Implementation of Good Corporate Governance for Commercial Banks.

In addition to the above provisions and GCG implementation guidelines, namely from the Organization for Economic Cooperation and Development (OECD); ASEAN Corporate Governance Scorecard; Komite Nasional Kebijakan Governance (KNKG) Basel Committee on Banking Supervision. Thus corporate governance can build credibility, ensure transparency and accountability and maintain an effective information disclosure channel and can improve company performance.

Corporate governance in this study is proxy in the form of:

Institutional shareholding. The shareholder as the owner of the capital has rights and responsibilities of the company in accordance with the laws and regulations of the company. According to Dana AL-Najjar (2015), Institutional ownership has the positive and insignificant effect on ROA and ROE, and Marcia M. Cornett et al (2007) stated Institutional share ownership significantly influence ROA, while Alizadeh et al. (2011) states that ownership concentration has no significant effect on company performance.

Board of Commissioners. The Board of Commissioners is a component of the company in charge of jointly monitoring and advising the Board of Directors and ensuring that the company executes GCG (KNKG, 2006). The BoC may consist of a Commissioner who is not an affiliated party known as an Independent Commissioner and an affiliated Commissioner and both are appointed by the GMS. The number of Independent Commissioners shall ensure that the oversight mechanisms operate effectively and in accordance with the laws and regulations and must have an accounting or financial background. With regard to board issues, there are several researchers claiming; Hassan and Ahmed (2012), board composition has a negative effect on company performance, Ibrahim S. Alley et al (2016) stated that the composition of the board positively affects the performance of the company and Bhagat and Black (2002) found no significant relationship between board composition and performance. According to Kumar and Nihalani (2014), the board of directors of important roles in corporate performance and board meetings negatively impacted financial performance, AjalaOladayoAyorinde et al. (2012), revealed that the coop size and financial performance relationships are negative and significant, share ownership and performance finance is positive and significant. While Amina Buallay et al (2017), with the Tobin Q model, concluded that there is no significant impact on shareholder ownership and the independence of the Board of Directors on the performance of the company. and the relationship of ownership and size of the Board of Directors to the performance of the company is significant. While Linda Agustina et al (2015), the empirical results show that managerial ownership and independent commissioners have a significant effect on financial performance.

Audit Committee. The audit committee is a corporate governance mechanism designed to produce relevant, adequate and reliable information that can be used by investors and independent observers to assess company performance. The members of the audit committee are part of the board of directors responsible for formulating strategies to improve the financial health of the company, and safeguarding the company's financial transparency. According to Karam Pal Narwal et al (2015) and audit committee have a negative effect on profitability.

Board of Directors. Directors are people who apply corporate governance in achieving company goals (financial performance). According to MesutDoğan and Feyyaz YILDIZ (2013) the relationship of the number of board members (D BORD) with the return on assets (ROA) and return on equity ratio (ROE) is negative and significant. And according to Victor-Octavian Müller (2013), the composition of the company's board of directors has a significant positive impact on performance.

Non Performing Loan (NPL). NPLs are known for non-performing loans and this can have an impact on the bank's lack of capital and will have an impact on lending in the next period. Based on Bank Indonesia Regulation Number 6/10 / PBI / 2004 dated 12 April 2004 regarding Commercial Bank Rating System, the NPL ratio is 5%. If the value of NPL (above 5%) then the bank is not healthy and cause a decline in profits to be received by the bank.

Loan to Deposit Ratio (LDR). LDR (Loan to Deposits Ratio) is a ratio that measures the ability of banks to meet short-term liabilities by dividing total loans to total Third Party Funds (DPK). The LDR value is too high, meaning that banks do not have sufficient liquidity to cover their obligations to customers (DPK). Conversely, if the LDR value is too low it means that banks have enough liquidity to cover their liabilities, but may be lower incomes, as it is known that the banking world earns revenue through the distributed credit. The LDR value based on the BI regulation is 78% -94%.

Financial performance. According to the Indonesian Institute of Accountants (IAI), financial performance is the company's ability to manage and control its resources. Prior research that measures the company's performance is Khatab et al (2011 using Return on Assets (ROA) and Return on Equity (ROE) for case studies on the Karachi stock market, Dana AL-Najjar (2015) using Return on Assets (ROA) and Return on Equity (ROE) for the Jordanian Listed Firms case study and Marcia Millon Cornett et al (2007) using Return on Assets (ROA) for companies incorporated in S & P 100 (obtained from Standard & Poor's). Based on hypothesis testing results from Elly Halimatusadiah, et.al (2015), the level of

implementation of Good Corporate Governance has a positive effect on the profitability of the company (return on assets), Ogege S. and Boloupremo T. (2014), said board size, board composition, corporate governance, firm size and debt have no significant effect on Return on Assets (ROA) as well as Return on Equity (ROE). So that, Yolanda (2017) states ROA is a ratio that can reflect the level of effective management of assets owned by the company.

METHODS OF RESEARCH

The data used for this study is secondary data obtained from the financial statements of banks listed on the Indonesia Stock Exchange (BEI) between the period of six years (2011 and 2016) which consists of 20 banks with the criteria:

1. Commercial banks that publish the financial statements consistently period end of the month in 2011-2016 and submitted to Bank Indonesia.
2. The Company presents the complete financial statements and ratios required in this research for 5 consecutive years.
3. Have a positive and consistent profit during the period 2011-2016, because with a positive profit then there will be no extreme data that can lead to problems in data processing.

The main purpose of this study is to examine the effect of corporate governance on the performance of banking companies listed on the BEI 2011-2016 with analysis techniques using software Eviews with the descriptive statistical test, hypothesis test using f test and t-test and chow test/Hausman Test. Multiple linear regression (Equation of data panel regression with One Way Model) and the last test of the coefficient of determination.

Model Specification of this research is:

Model 1

$$ROA_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + \mu \quad (1)$$

Model 2

$$ROE_{it} = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \beta_3 X_{3t} + \beta_4 X_{4t} + \beta_5 X_{5t} + \beta_6 X_{6t} + \mu \quad (2)$$

Where:

Variable Y represents the performance of the company represented by Return on Assets / ROA (Y_1) and Return on Equity / ROE (Y_2) for banking companies listed on BEI at time t;

Variable X_1 is Institutional Share Ownership which is described as the proportion of Institutional Share Ownership to total outstanding shares for a listed banking company in IDX at time t;

Variable X_2 is an Independent Board of Commissioners described as the proportion of the Board of Independent Commissioners to the total Board of Commissioners for banking companies listed on the IDX at time t;

Variable X_3 is the Audit Committee of a banking company listed on the IDX at time t;

Variable X_4 is a Board of Directors at a banking company listed on the Stock Exchange at time t;

Variable X_5 is a Non-Performing Loan (NPL) in a banking company listed on the BEI at time t;

Variable X_6 is a Loan to Deposit Ratio (LDR) at a banking company listed on the IDX at time t.

To achieve the research objectives, the following hypotheses:

- H_1 : There is a significant positive relationship between institutional share ownership and company performance;
- H_2 : There is a significant positive relationship between the independent Board of Commissioners and the performance of the company;
- H_3 : There is a significant positive relationship between the Audit Committee and the company's performance;

- H₄: There is a significant positive relationship between the Board of Directors and the company's performance;
- H₅: There is a significant positive relationship between NPLs and company performance;
- H₆: There is a significant positive relationship between LDR and company performance.

RESULTS AND DISCUSSION

Descriptive statistics:

Model I. Table 1 shows the values of the mean, median, maximum, minimum and standard deviations of all the variables studied i.e. between institutional ownership, independent board of commissioners and audit committee, corrections board, NPL, LDR and ROA.

Table 1 – Descriptive Statistics

	Y1?	X1?	X2?	X3?	X4?	X5?	X7?
Mean	1.941228	74.55789	6.087719	3.964912	8.315789	2.234035	77.41737
Median	1.820000	82.61500	6.000000	4.000000	9.000000	2.125000	80.00000
Maximum	5.150000	99.79000	9.000000	8.000000	14.00000	8.800000	140.0000
Minimum	-4.900000	11.03000	3.000000	2.000000	4.000000	0.230000	21.43000
Std. Dev.	1.383053	21.34579	1.716971	1.240395	2.584213	1.253092	22.06438

Source: data processed (2017).

Model II. Table 2 illustrates the values of the mean, median, maximum, minimum and standard deviations of all the variables studied i.e. between institutional ownership, independent board of commissioners and audit committee, corrections board, NPL, LDR, and ROE.

Table 2 – Descriptive Statistics

	Y2?	X1?	X2?	X3?	X4?	X5?	X6?
Mean	14.18728	74.55789	6.087719	3.964912	8.315789	2.234035	77.41737
Median	13.16500	82.61500	6.000000	4.000000	9.000000	2.125000	80.00000
Maximum	42.49000	99.79000	9.000000	8.000000	14.00000	8.800000	140.0000
Minimum	-38.30000	11.03000	3.000000	2.000000	4.000000	0.230000	21.43000
Std. Dev.	10.86148	21.34579	1.716971	1.240395	2.584213	1.253092	22.06438

Source: data processed (2017).

According to table 1 and 2, it can be described as follows:

- Average Return on Asset Value of a company that is positive, this reflects that the total assets used for the company's operations are able to provide profit for the company;
- The average Return on Equity value of the firms studied is close to zero, indicating that firms are less efficient in using the capital to generate income;
- The average institutional shareholding is above 70%;
- The average number of independent Board of Commissioners is 6 persons;
- The average number of audit committees are 4 persons;
- The average number of Board of Directors of the company under study is 9 persons. The average value of the NPL is 2.125. This value indicates that the problematic credit risks faced by the firms under study are under the terms tolerated by BI at 5%.
- Maximum LDR score of the firms studied is 140, minimum 21.43 and average 80. This reflects the existence of an unhealthy company in carrying out its operations (PBI No. 17/11/PBI/2015 dated June 25, 2015, LDR value healthy companies in carrying out their operations are between 70%- 92%).

Regression analysis:

Model I. Hausman test results (cross section random with Prob 0.9557) showed that the random effect is the selected model because the probability value is greater than 0.5. The random effect model has a constant coefficient value of 19 banking firms of 3.0301 with a probability of 0.0017 (significant).

Table 3 – Model of Common Effect, fixed Effect and Random Effect

Variable	Common effect			Fixed effect			Random effect		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C				3.465159	3.463199	0.0008	3.030101	3.214073	0.0017
X1?	0.026767	0.304294	0.7615	-0.004952	-0.941504	0.3490	-0.005214	-1.036415	0.3023
X2?	0.212494	2.156299	0.0333	-0.013461	-0.142676	0.8869	0.019179	0.223685	0.8234
X3?	0.173182	4.169049	0.0001	0.092248	1.144554	0.2555	0.117038	1.540026	0.1265
X4?	-0.459233	-4.930137	0.0000	0.058343	1.014885	0.3129	0.077208	1.505215	0.1352
X5?	0.014760	2.098022	0.0382	-0.535764	-9.858734	0.0000	-0.531508	-9.861303	0.0000
X6?	-0.010204	-1.610952	0.1101	-0.008515	-0.909935	0.3653	-0.008618	-0.972216	0.3331
R-squared	0.327608			0.860986			0.518268		
Adjusted R-squared	0.296478			0.823499			0.491256		
F-statistic				22.96755			19.18590		
Prob (F-statistic)				0.000000			0.000000		

Source: data processed (2017).

Partial test from table 3 above is obtained:

- NPL (X_5) has a negative and significant relationship with ROA (Y_1). This shows the increasing number of nonperforming loans so the level of profit earned decreases because the benefits of the credit obtained. The results of this study are in line with research results of Kolcha Balango¹ and Madhusudhana Rao K (2017) and Yuga Raj Bhattarai (2016);
- Institutional shareholdings (X_1) and LDR (X_6), have a negative and insignificant relationship with ROA (Y_1). In line with the results of this study M. Nayeem A and NusratJahan (2014) which states are not significant;
- The effect of independent variables simultaneously on ROA is significant;
- Board of commissioners (X_2), Audit Committee (X_3) and Board of Directors (X_4), have a positive and insignificant relationship with ROA (Y_1);
- The amount of influence of independent variable to ROA is 49,13% and the rest influenced variable not examined.

Model II. Based on table 4, Hausman test results (cross section random with Prob 0.3804) showed that random effect is the appropriate model. The random effect model has a constant value of 19 banking companies has a coefficient of 3.0301 with a probability of 0.0017 (significant).

Table 4 – Model of Common Effect, fixed Effect and Random Effect

Variable	Common effect			Fixed effect			Random effect		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
C				40.10018	4.712325	0.0000	32.39493	4.222899	0.0001
X1?	-0.066028	-1.296659	0.1975	-0.016504	-0.368940	0.7130	-0.015520	-0.368568	0.7132
X2?	0.215611	0.304903	0.7610	-1.167765	-1.455310	0.1491	-0.507508	-0.717325	0.4747
X3?	1.771935	2.236712	0.0274	0.884305	1.290085	0.2004	1.233861	1.943660	0.0546
X4?	1.262040	3.779261	0.0003	0.165259	0.338009	0.7362	0.409572	0.973920	0.3323
X5?	-3.609064	-4.819697	0.0000	-5.060975	-10.95005	0.0000	-4.951767	-10.83640	0.0000
X6?	0.094844	1.677000	0.0964	-0.130604	-1.641054	0.1043	-0.131180	-1.771977	0.0792
R-squared	0.295431			0.836961			0.552741		
Adjusted R-squared	0.262812			0.792996			0.527661		
F-statistic	-			19.03678			22.03919		
Prob(F-statistic)	-			0.000000			0.000000		

Source: data processed (2017).

Partial test, showing audit committee (X_3), NPL (X_5) and LDR (X_6) have the significant effect on ROE at $\alpha = 10\%$. This means the three variables affect the company's profit and

capital (equity). NPL and LDR have a negative effect on ROE, which means that the higher NPL (credit problem), the profit received by the banks will decrease and also the higher LDR reflects the banks do not have enough liquidity to cover their obligations to customers (DPK) and profit will fall as banks earn profits from third-party funds (DPK).

This is contrary to research results Yuga Raj Bhattarai (2016) which states that the NPL has a positive effect on ROE. Meanwhile, variable of institutional share ownership (X_1), the board of commissioner (X_2) and board of directors (X_4) have no significant effect on ROE (Y_2).

Simultaneously the influence of independent variable above to ROE is significant, while the influence of independent variable to ROE is 52,76% and strong influence.

CONCLUSION AND RECOMMENDATIONS

Based on the main objective of this study is to assess the impact of institutional ownership, independent board of commissioner and audit committee, the board of directors, NPL and LDR on the performance of selected commercial banks in Indonesia, for the sample period from 2011 to 2016 the following conclusions:

- Good corporate governance, no significant effect on ROA or ROE, unless audit committee has significant influence with ROE.
- The impact of the Non-Performing Loan Ratio is negative which means that the increase in NPL leads to a decrease in profitability (ROA and ROE).
- The value of Loan to deposit ratio (LDR) describes the health of a company in carrying out its operations. Based on the result of research of LDR relation to ROA is the negative mean increase of LDR value will decrease company ability in profit making.
- Based on the findings and conclusions of the study, the following recommendations may be given:
- Implementation of corporate governance must be consistent because it can improve the quality of corporate financial statements and minimize agency cost, ie costs arising as a result of delegation of authority to management.
- Bank management needs to be careful in preparing a credit policy that will not affect the decline in profitability.
- LDR calculation is used as an indicator to determine the level of vulnerability of a bank, therefore for the bank must be careful in channeling third-party funds LDR and not to reduce profitability.

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INDONESIAN CUSTOMER SATISFACTION IN ONLINE SHOPPING TRADING

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ABSTRACT

This research aims to find out if the ease of shopping, site design, informative, comprehensive, and communication have a significant influence on the level of Indonesian customer satisfaction in online shopping transactions and how the impact to the word of mouth communication. Respondents of this study are the 250 students of Jakarta colleges. This study found that the variables of design, simplicity, and security have an influence on customer satisfaction in shopping online, while the informative variable and communication have no influence on the customer's satisfaction online shopping.

KEY WORDS

Customer, satisfaction, online shopping, communication.

There are many reasons why the community prefers to shop online transaction versus offline transaction at this time. First, the existence of the ease of the purchase or sale of a product gets is not limited by space. Second, the variety of products offered. Third, the buying process and decision making can be done easily. Fourth, the ease offered by online commerce more promising by looking the product that is already accessible to buyers, and can be reviewed by other customers. Online shopping site should also provide a guarantee of safety for consumers in conducting transactions, such as maintaining the privacy of the consumer, and timely product delivery assurance (Hoffman & Novak, 2000). In other words, the guarantee of the security of the transaction the customer become the main factor that has been held by online merchants.

The last few years, online stores have grown in Indonesia, for example, kaskus.co.id, lazada.co.id, olx.co.id, and berniaga.com. The mall also presented online such as the website of blibli.com and matahari.com. The growth of the internet in Indonesia is a huge opportunity for online merchants and buying and selling of products supported by the ease of shipping goods via courier services, such as Tiki, JNE, and instant courier services offered i.e., Go-Jek and Grab. Word of mouth communication, provide information for prospective consumers who had never shopped online, feel more secure in the shopping, so need service to customers are constantly given.

This study aims to analyze whether the ease of shopping, site design, informative, comprehensive, and communication have a significant influence on the level of customer satisfaction in doing online shopping transactions and how its influence on the communication of the word of mouth.

LITERATURE REVIEW

Customer satisfaction is someone's feeling about likes or dislikes against a product after comparing the actual performance of the product with the expected performance (Kotler, 2003). Our satisfaction commitment affects online shopping (e-commitment) that can encourage the occurrence of communication is word of mouth (WOM) (Mukherjee & Nath, 2007).

The convenience of the users of online sites that reflect detail information regarding the products, goods or services effect on customer's satisfaction. If the site is difficult to navigate and there is less relevant content, the user will easily switch to another site (Reichheld & Scheffer, 2000). The appearance of online retail, graphics or image needs to be made in order to attract consumers who visited these sites were interested to explore it (Lohse&

Spiller, 1998). Navigation, product information, and design of the site are an important factor in creating customer satisfaction online (Szymanski &Hise, 2000). This opinion is supported by the Page and Lepkowska-Whitc (2002), Ranganathan and Ganapathy (2002) which showed a site design influences towards customer satisfaction.

Another important variable is the quality of information about the product or service provided (Widow et al., 2002; Szymanski &Hise) on the drop. The accuracy of information is a very important element for the credibility of the site. Consumers will benefit most from an information if it considers that such information is accurate (Cheung et al., 2008). The last dimension of the quality of information is comprehensive. Cheung et al. (2008) found that the more complete the information provided by the site, the higher the benefits that will accrue to the users of the site. The informative site may encourage consumer satisfaction in shopping online.

Lee and Turbans (2001) state that the consumer is unlikely to make a purchase online if it faces consequences were concerned. Therefore, the drop in security in shopping online is worthy of note because security refers to security technology, such as the presence of privacy, verification, and encryption mechanisms (Mukherjee & Nath, 2007). Marketers need to assure prospective consumers that transactions they do safety.

The other variable is a communication. Communication includes openness, quality of information, and the quality of response (Mukherjee & Nath, 2003). Gefen and Straub (2001) found that electronic systems are very important to build consumer trust online shopping. The quality of the response refers to the speed and frequency of communication in responding to the case.

Communication is the phenomenon of WOM group, an exchange of thoughts or ideas between two or more persons (Bone, 1992). Communication is more trusted than WOM advertising or information provided through the corporate promotion (Silverman, 2001).

E-WOM is communication, both containing a positive or negative message, made by consumers regarding product or company through internet media (Hennig-Thurau et al.,) the number of consumers shopping online was 83% of online consumers reported that they make a purchase based on the results of the review and the recommendations of other consumers online (Opinion Research Corporation, 2008, referenced in Cheung & Thadani, 2010).

CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

The conceptual framework in this study can be described in Figure 1.

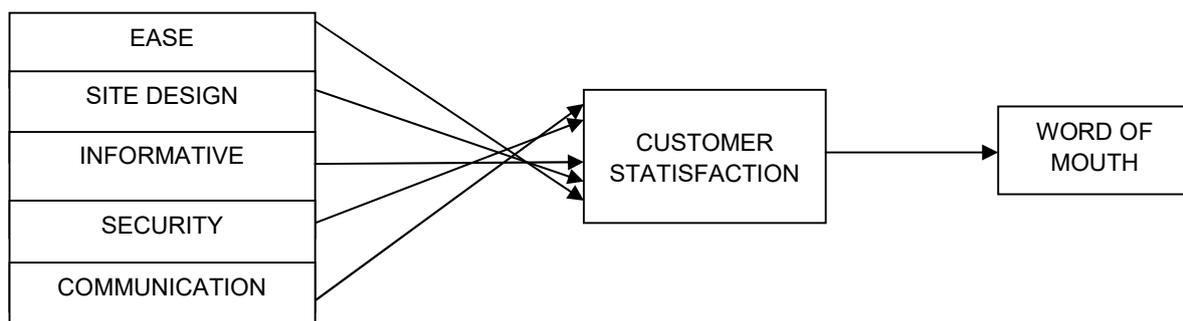


Figure 1 – Model Research

The hypothesis developed in this study are below.

H1: the ease of shopping online has a significant and positive influence towards customer satisfaction.

H2: the design of online shopping site has a significant and positive influence towards customer satisfaction

H3: informative online shopping site has a significant and positive influence towards customer satisfaction

H4: security online shopping site has a significant and positive influence towards customer satisfaction

H5: communication in the online shopping site has a significant and positive influence towards customer satisfaction

H6: customer satisfaction online shopping has significant effects on communication is word of mouth.

METHODS OF RESEARCH

The population of this study is an experienced Indonesia community shopping over the internet. Data collection was done through the dissemination of questionnaires that were adopted from Chung and Shin (2010, 2009). The questionnaires distributed to 250 students at several universities in Jakarta. Sampling techniques using a convenience sampling. An indicator is said to be valid if it has a value of corrected item-total correlation of 0.30. Measurements of a variable are said to be reliable if it has a value of Cronbach alpha 0.60.

RESULTS AND DISCUSSION

Reliability test results showed that all variables used in this study are reliable. It can be seen from Alpha Cronbach's value of each variable is greater than 0.7 (see Table 1).

Table 1 – Summary of Reliability test results (n = 250)

Variabel	Nilai Cronbach's Alpha
Ease	0.783
Site Design	0.842
Informative	0.795
Security	0.868
Communication	0.776
Consumer Satisfaction	0.856

Table 2 – Summary of the validity of the test results (n = 250)

Variabel	Question item	r-count	r-table (df=248, $\alpha=5\%$)
Ease	This site is comfortable to use	0.593	0.1241
	It takes a short time to shop on this site	0.598	0.1241
	This site provides the ease of booking procedure	0.645	0.1241
	People who make a purchase on this site do not require the assistance	0.538	0.1241
Site Design	The site is visually appealing	0.694	0.1241
	This site has a good selection of content	0.720	0.1241
	The look of the site owned by professional	0.690	0.1241
	This design is easy to understand when doing transaction	0.603	0.1241
Informative	Provides information about the features and products that are sold	0.569	0.1241
	Provide accurate information about the features and quality of the product	0.646	0.1241
	Provide various types of information (payment, shipping, and returns)	0.556	0.1241
Security	Provides good information about products offered	0.657	0.1241
	I feel safe transacting on this site	0.629	0.1241
	My privacy is protected on this site	0.782	0.1241
	I believe that this site will not be misappropriated personal information	0.738	0.1241
Communication	I believe that this site will not provide my personal information to other sites without my permission	0.742	0.1241
	Consumers can file complaints or ideas on this site	0.651	0.1241
	This site has a good terms and conditions	0.519	0.1241
	Customers can review products on this site are actively	0.612	0.1241
Customer Satisfaction	This site delivers unrivalled freedom to exchange thoughts	0.544	0.1241
	I am satisfied with the offer that is available on this site	0.703	0.1241
	I am satisfied with the method of purchases made on this site	0.792	0.1241
	I am satisfied with the product that I purchased on this site	0.696	0.1241

From Table 2, it can be seen the r value calculated for all items larger questions of values of r-table. As such, all item variable questions to ease, site design, informative, security, communication, and consumer satisfaction are valid.

The results of the test of normality with the Kolmogorov Smirnov shows p-value 0.244 > alpha 0.05 so that it can be concluded that the residual value is normally distributed. In other words, the regression models meet the assumptions of normality of the data. Obviously, this can be seen in Table 3:

Table 3 – Data Normality Test Results

		RES_1 Unstandardized Residual
N		250
Normal Parameters ^a	Mean	0.0000000
	Std. Deviation	1.40409441
Most Extreme Differences	Absolute	0.065
	Positive	0.065
	Negative	-0.043
Kolmogorov-Smirnov Z		1.025
Asymp. Sig. (2-tailed)		0.244

a. Test distribution is Normal.

Heteroscedastic testing is done using graph scatterplot to see if the entire residual or error has the same variant for the entire observation over the independent variable. The table indicates that the Predicted Value Component Regression shows a random pattern so there were no heteroscedastic on the model of research.

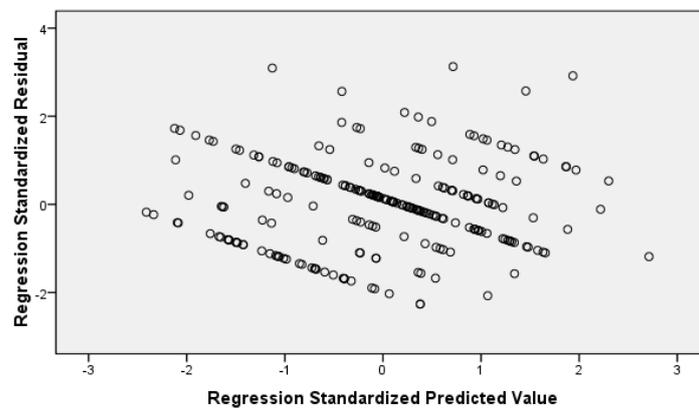


Figure 1 – The results of a test Scatterplot

Table 4 – Multicollinearity Test Results

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1 (Constant)	0.753	0.516		1.458	0.146		
X1 Ease	0.177	0.047	0.209	3.777	0.000	0.851	1.175
X2 Site Design	0.095	0.047	0.125	2.025	0.044	0.685	1.459
X3 Informative	0.005	0.042	0.007	0.129	0.897	0.851	1.175
X4 Security	0.269	0.046	0.371	5.784	0.000	0.635	1.575
X5Communication	0.079	0.040	0.107	1.959	0.051	0.881	1.135

Dependent Variable: Y1 Customer Satisfaction

The independent variables have no tolerance and values when multicollinearity VIF approaching 1 (Ghozali, 2006). Table 4 shows the value of tolerance nothing less than 0.10 and VIF nothing greater than 10 so it can be concluded that there is no multicollinearity among the independent variables.

The value of the DW of 1.899 in Table 5 indicates that the value is between the value of du (1.8199) and 4-du (2.1801) so it can be concluded that there is no autocorrelation in regression models.

Table 5 – Autocorrelation Test

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.603 ^a	0.363	0.350	1.418	1.899

a. Predictors: (Constant), X5 Communication , X2 Site Design , X3 Informative , X1 Ease , X4 Security

b. Dependent Variable: Y1 Customer Satisfaction

To perform an analysis of the influence of all the variables are independent of the level of voluntary disclosure, performed statistical tests or ANOVA F test done which results are shown in Table 6. Based on Table 6, it is known that the value of F is the count of significance with the value 0000 27,823 far below the 0.05 value then it can be inferred that the regression model can be used to predict the level of consumer satisfaction online trading in this research. In other words, the whole independent variables simultaneously affecting the level of consumer satisfaction online trading in this study.

In addition, Table 7 also shows the value of the coefficient of determination (Adjusted R Square) of 0.35. It showed that about 35% of the variation of the independent variables included in this study may explain the dependent variables, the remaining 65% is explained by other variables that are outside the model or not tested in this study.

Table 6 – Anova Test Results

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	279.885	5	55.977	27.823	.000 ^a
	Residual	490.899	244	2.012		
	Total	770.784	249			

a. Predictors: (Constant), X5 Communication , X2 Site Design , X3 Informative , X1 Ease , X4 Security

b. Dependent Variable: Y1 Customer Satisfaction

Table 7 – Determination Of Coefficient Of Test Results

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	0.603 ^a	0.363	0.350	1.418	

a. Predictors: (Constant), X5 Communication , X2 Site Design , X3 Informative , X1 Ease , X4 Security

Table 8 presents the results of the test data t of each independent variable are examined. The test results show that only the dimension design, simplicity, and security of sites that have an influence on the online shopping because of customer satisfaction has significance below 0.05, whereas the dimension of the informative and communication have no influence customer satisfaction online trading.

Table 9 shows the value of significance from the ease of the site of 0.000, smaller than 0.05. Thus the results of this study support Szymanski and Hise, 2000; Srinivasan et al., 2002; and Chung and Shin, 2008 indicate that the ease of the site has a significant influence on the level of satisfaction of consumers shopping online. The ease of the site effect on

satisfaction because if your site is difficult to navigate and there is a less relevant content, then the user will be easy to move to see another site (Reichheld & Scheffer, 2000) and because the consumers use online retail shopping to obtain ease of transactions (Torkzadeh & Dhillon, 2002).

Table 8 – The t-test results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.753	0.516		1.458	0.146
X1 Ease	0.177	0.047	0.209	3.777	0.000
X2 Design	0.095	0.047	0.125	2.025	0.044
X3 Informative	0.005	0.042	0.007	0.129	0.897
X4 Security	0.269	0.046	0.371	5.784	0.000
X5 Communication	0.079	0.040	0.107	1.959	0.050

Dependent Variable: Y1 Customer Satisfaction

Table 9 shows the value of significance of site design of 0.044, smaller than 0.05. Thus the results of this study show that the design of the site has a significant influence on the level of satisfaction of consumers shopping online. The results of this study similar with Page and Lepkowska-Whitc (2002); Ranganathan and Ganapathy (2002); Loshe and Spiller (1998) which show the existence of a site design influences towards customer satisfaction. An interesting site design (graphics or images) support the appearance of a retail online so consumers who visit the site will be keen to explore it (Lohse and Spiller, 1998). Good site design, neat, and easy navigation and fast can satisfy consumers because it can save you time in the shop and do not drain the minds of consumers in conducting transactions (Pastrick, 1997; Szymanski & Hise, 2000).

The value significance of the informative site of 0.897 far greater than 0.05 so the informative site has no influence on the level of satisfaction of consumers shopping online. The results of this study do not support the hypothesis.

The data in Table 9 show the value of significance of site security of 0.000, smaller than 0.05. It indicates that site security has a significant influence on the level of satisfaction of consumers shopping online. The results of this study are the same with Hoffman and Novak (2000), Reichheld and Scheffer (2000), and Chung and Shin (2010) whose state that the security of the transaction in an online shopping system is an important factor to attract customers considering security a retail site that will effect on customer satisfaction. Site security related consumer concerns over the risk of reducing the losses that may be encountered (Lee & Turbans, 2001) and make consumers unprotected from a side of privacy and security (Udo, 2001).

Table 9 also shows values the significance of communications site of 0.050, equal to 0.05. Thus the results of this study indicate that communication site does not have a significant influence on the level of satisfaction of consumers shopping online. Communication in the site in the form of disclosure, provision of information that is authentic, relevant, and quality, as well as adequate feedback systems, are proven to encourage consumer satisfaction. The results of this study do not support the hypothesis of Joines et al. (2003) which showed that the tendency of internet users to do online shopping related to motivational communication and also the results of research Chung and Shin (2010) which showed that communication encourages the creation of customer satisfaction.

CONCLUSION

The results of this study show that only the dimension of ease, security, and design influence on the satisfaction of customers shopping online because they have a value of

significance below 0.05, whereas the dimension of the informative and communication do not influence on customer satisfaction online trading.

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MEASUREMENT FOR ACCEPTANCE OF SUPPLY CHAIN SIMULATOR APPLICATION USING TECHNOLOGY ACCEPTANCE MODEL

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ABSTRACT

The aim of this research for was to measure the user acceptance of simulator application which was built as a tool for student in learning of supply chain, particularly in bullwhip effect problem. The measurements used for the acceptance of supply chain simulator application in this research was the Technology Acceptance Model from 162 samples which were analyzed with Confirmatory Factor Analysis and Structural Equation Modelling. The result of this research indicated that the user acceptance (shown by customer participation) of supply chain simulator was directly influence by perceived usefulness of supply chain simulator application used (positive and significant); the user acceptance of supply chain simulator was indirectly influenced by perceived ease of use in using supply chain simulator application (positive but not significant); the user acceptance of supply chain simulator was indirectly influenced by perceived enjoyment when the supply chain simulator application was used. The research would give a better understanding about a bullwhip effect and better experience for students, which would not be obtained through conventional learning, when the tools were not used.

KEY WORDS

Supply chain, bullwhip effect, simulator, simulation.

In the education system, teachers are key to the effective use of technology in teaching and learning process. The use of technology also is very helping students as a means to improve the learning process quality and increase the competence of human resource. Beer game is a game which is used as a mean of simulation game from course of logistic and supply chain. This game is given to the student which will later on brings experience in industry area to the students in managing distribution planning of goods from one manufacturer to the retails or the end user (customers), as well as the understanding of the impact of "bullwhip effect" in the supply chain area.

The bullwhip effect is a condition which should be avoided because it will give an impact on high cost of industrial logistic process in upstream and downstream relationships. Above user experience obtained from the game would give an experience to human resources in logistic field in order to avoid and to solve the problems which may happend in the real world when they work in industry field.

The development of information technology, particularly the game with simulator model has become a trend which is mostly used in order to increase user experience in supply chain relationship. The application of supply chain simulator is an application which is build as a tool in learning of supply chain, particularly bullwhip effect. The problem in the research are as follows: how to identify the realted user experience variables in the implementation of the application of supply chain simulator; how the user experience on supply chain simulator; how difference the application of supply chain simulator if compaired with the related user experience conventional method.

Based on above mentioned problems, then the research was carried to measure the user experience of supply chain simulator using TAM.

Application of Supply Chain Simulator. The model of supply chain simulator which is implemented into the application of supply chain simulator. In this research is facilitated with the following features and services: supply chain applies only as retailer – wholesaler – distributor – factory in one chain; the game is one group can only be played by a minimum of 2 to a maximum of 4 people with different roles; the application is provided with EOQ method calculation and forecasting (only 1 method); the game is customized in week number (set 12 weeks, 30 seconds per week) or set 52 weeks – 52 minutes; the role scenario is determined by administrator as game facilitator; Based on the feature which are implemented in the application of supply chain simulator, then the architecture system in the following application of supply chain simulator:

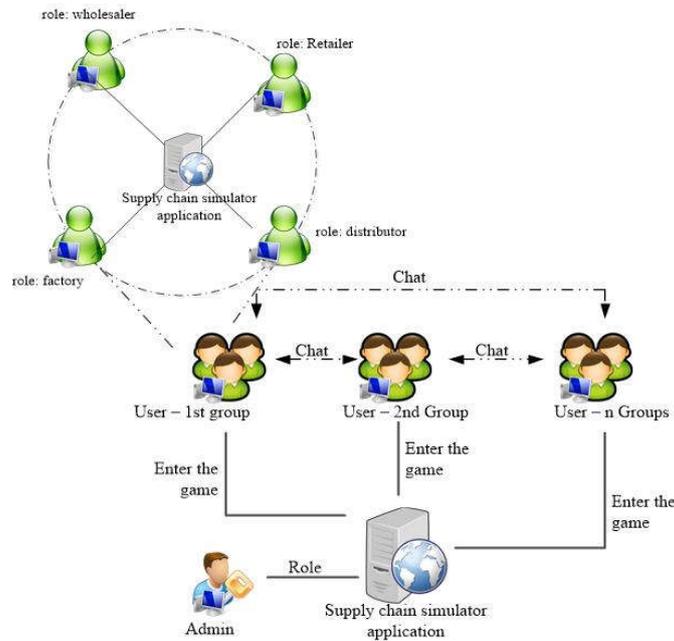


Figure 1 – Architecture system in the application of supply chain simulator

Method of Acceptance Measurement Application supply chain simulator

This measurement method is part of the simulator application testing series of supply chain application simulator with the following method:

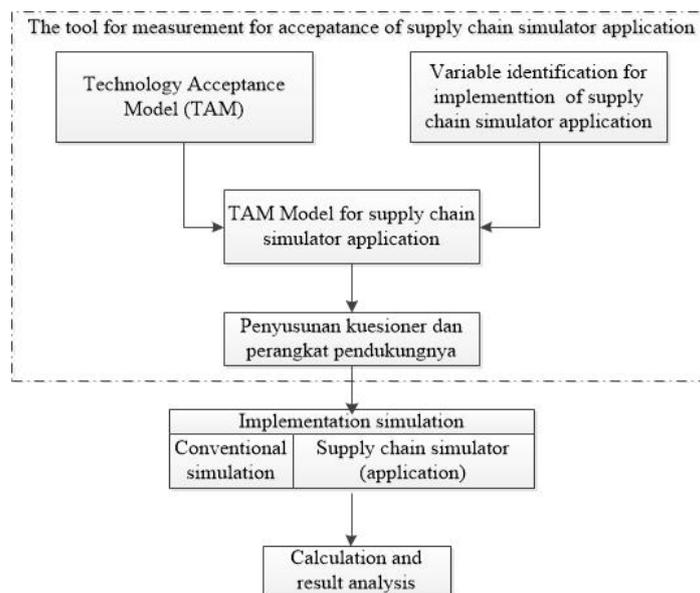


Figure 2 – Acceptance Measurement Method of Supply Chain Simulator Application

Analysis of TAM theory and variable identification were used to identify the TAM model which was suitable with the simulator application of supply chain.

TAM model of the simulator application supply chain was used as the reference of established questionnaires which were used as the benchmarks of application acceptance of supply chain simulator.

Implementation of simulation was divided into 2 parts, i.e. implementation of conventional simulation with observation, while SEM was used for the measurement implementation of simulator application of supply chain.

All student of Politeknik Pos Indonesia receiving the logistic course (minimally introductory of logistic course for the department aside from business logistic) to a total of ± 360 students for one generation were regarded as the population.

The use of SEM would require a large samples. According to Hair (2006), the sample size for model testing where SEM was applied varied between 100-200 samples or depended on all latent variables (i.e. parameter number multiplied with 5 to 10). Therefore, number of sample to a total of 162 was generally accepted as representative sample in SEM analysis, and so the sample size to a total of 162 persons (users) were taken for the implementation of supply chain simulator application. The aim of supply chain simulator application was to give user experience (UX) related to bullwhip effect showing the logistic area related to distribution. This means that every user who makes use of supply chain simulator application has the basic principle of logistic.

Determination of UX variable in TAM for the application of supply chain simulator. In this research the most relevant Journal published by Zacharis, 2012 was prepared. The reason was due to the indicator could still be developed and be added with new construction (for instance the student participation adopted by Sheng and Zolfagharian, 2014). Therefore, the proposed model in this research is given figure 3.

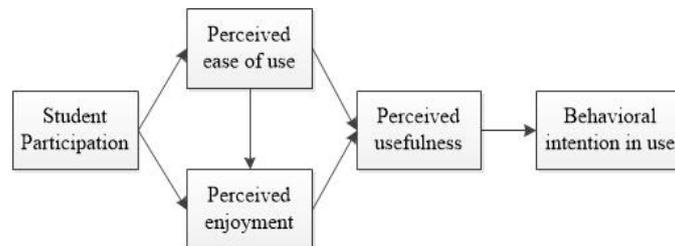


Figure 3 – TAM Model of Supply Chain Simulator

The result of research indicated that the expected experience by the user after the application of simulator has been used in connection with three matters:

- Life goals: every player obtained experience to the determination of order strategy to solve the happening bullwhip effect;
- Experience goals: every player obtained experience in conducting his role either as retailer/distributor/ wholesaler/factory. Therefore the player would feel the existence of bullwhip effect and how the above bullwhip effect could be solved;
- End goals: every player could understand what kind of matter which cause the happening bullwhip effect, what to be done if happened and how to use the equipment/method to order to avoid the existence of above bullwhip effect;

If related with TAM variable, UX variable is related with student participation for achieving life goals, experience goals and end goals which give rise to the following measurement variables:

- Usefulness Variables: Usefulness Variables use the instrument developed by Davis (1989); Hsu and Lu (2004), later on modified in context with the use of the simulation application of supply chain simulator provided with three question items;
- Ease of Use Variables: Ease of Use Variables use the instrument developed by Davis (1989); Hsu and Lu (2003), later on modified in context with the use of simulation application of supply chain simulator provided with four question items;

- Interest/Motivation variables: interest/ Motivation Variables use the application simulation of supply chain simulator with two items as developed by Davis (1989), Hsu and Lu (2003), later on modified to context with the use of application simulation of supply chain simulator variable in intention variable of use and enjoyment variable;
- User Experience Variables: User Experience Variables in this research is included in student participation.

Based on above mentioned variables, then the following question are given:

Table 1 – Questions from mesasurement variables TAM

No	Questions
Student Participation	
1	the use of supply chain simulator application, information has triggering action the other users
2	The effect of supply chain simulator application againsta the game which is running (bullwhip effect arises or not)
3	The number of actions performed when the supply chain simulator application was used
4	The amount of time spent in the supply chain simulator application, from start to finish, and then the ranking list is displayed
Perceived Ease of Use	
1	The ease in playing the supply chain simulator application
2	The level of simplicity of using the supply chain simulator application
3	The ease in learning the supply chain simulator application
4	The ease in understanding the working of supply chain simulator application
Perceived Enjoyment	
1	I found the interesting experience in learning of bullwhip effect in supply chain simulator application
2	The supply chain simulator application can be a fun learning tool
3	Feel very happy (not bored) when using the supply chain simulator application
Perceived Usefulness	
1	The supply chain simulator application increased my understanding of the supply chain
2	The supply chain simulator application hels facilitate the learning process supply chain
3	The supply chain simulator application helps in learning how bullwhip effect arises in a supply chain process
Behavioral Intention to Use	
1	You will recommended the application as a learning tool about the bullwhip effect
2	Selection of the supply chain simulator application after getting the relevant theory
3	Reuse of the supply chain simulator application, if you want to understand the issues related to the bullwhip effect

Implementation of Supply Chain Simulation. Implementation of supply chain application simulator use was applied in the form of game on 162 respondents/users cariend out in the Politeknik Pos Indonesia. At the time of above mentioned supply chain simulation application all respndents were carried out manually. Based on the reults of simulation observation carried out on respondents, the conventional simulation:

- Requires several training and direction, because many respondents do not understand why they must write the demand of goods;
- Many respondents must remove and rewrite the demand value of goods several times after the papers of gods demand are submitted to the previous chains;
- Part of the respndent seems to be bored (not enthusiastic) by writing the figure of goods demand perfunctorily (very high gape with the previous demand).

Measurement of TAM Model on Supply Chain Simulator:

Table 2 – Loading Factor Value of Student Participation (SP) Variable

Indicator variables	Loading Factor	P-value	Remarks
SP1 ← SP	0.832	0.000	VALID
SP2 ← SP	0.884	0.000	VALID
SP3 ← SP	0.835	0.000	VALID
SP4 ← SP	0.856	0.000	VALID

It can be concluded that the fourth indicator variables measurig the Student Participation latent variable were regarded as valid variable.

The result of computation of Construct Reliability (CR) value are as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{[(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)]} = \frac{(3.047)^2}{[(3.047)^2 + (1.095)]} = 0.894^*$$

It can be concluded that all indicators arranging the Student Participation latent variable was reliable.

Table 3 – Loading Factor Value of Perceived Ease of Use (PEU) Variable

Indicator variables	Loading Factor	P-value	Remarks
PEU1 ← PEU	0.755	0.000	VALID
PEU2 ← PEU	0.860	0.000	VALID
PEU3 ← PEU	0.916	0.000	VALID
PEU4 ← PEU	0.870	0.000	VALID

It can be concluded that the fourth indicator variables measuring the Perceived Ease of Use latent variable were regarded as valid variable.

The result of computation of Construct Reliability (CR) Value are as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{[(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)]} = \frac{(3.401)^2}{[(3.401)^2 + (1.094)]} = 0.913^*$$

It can be concluded that all indicators arranging the Perceived Ease of Use latent variable was reliable.

Table 4 – Loading Factor Value of Perceived Enjoyment (PE) Variable

Indicator variables	Loading Factor	P-value	Remarks
PE1 ← PE	0.914	0.000	VALID
PE2 ← PE	0.111	>0.05	LESS VALID
PE3 ← PE	0.217	>0.05	LESS VALID

It can be concluded that there was a less valid indicator in measuring the Perceived Enjoyment latent variable. However, for the perfect of determined research model, the above mentioned indicator would remain be used in Structural Equation Modeling (SEM).

The result of computation of Construct Reliability (CR) Value are as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{[(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)]} = \frac{(1.242)^2}{[(1.242)^2 + (2.105)]} = 0.423^*$$

It can be concluded that the indicator in measuring the Perceived Enjoyment latent variable was less reliable. However, this variable would remain be maintained in this research model.

Table 5 – Loading Factor Value of Perceived Usefulness (PU) Variable

Indicator variables	Loading Factor	P-value	Remarks
PE1 ← PU	0.830	0.000	VALID
PE2 ← PU	0.953	0.000	VALID
PE3 ← PU	0.940	0.000	VALID

It can be concluded that the fourth indicator variables measuring the Perceived Usefulness latent variable were regarded as valid variable.

The result of computation of Construct Reliability (CR) value are as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{[(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)]} = \frac{(2.723)^2}{[(2.723)^2 + (0.519)]} = 0.934^*$$

It can be concluded that all indicators arranging the Perceived Usefulness latent variable was reliable.

Table 6 – Loading Factor Value of Behavioral Intention of Use (BIU) Variable

Indicator variables	Loading Factor	P-value	Remarks
BIU1 ← BIU	0.890	0.000	VALID
BIU2 ← BIU	0.857	0.000	VALID
BIU3 ← BIU	0.816	0.000	VALID

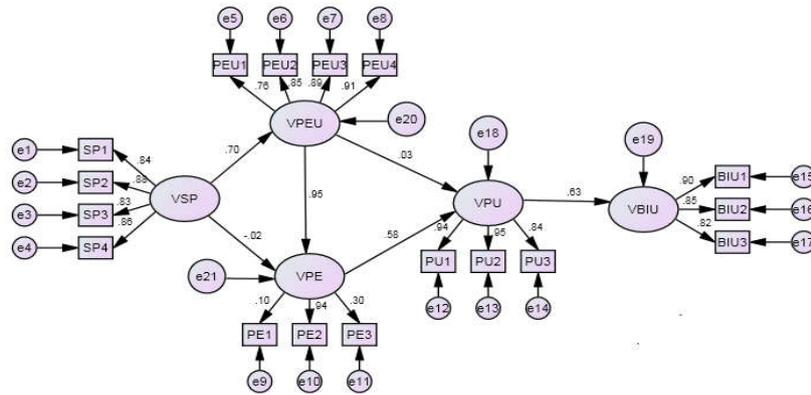
It can be concluded that the fourth indicator variables measuring the Behavioral Intention to Use latent variable were regarded as valid variable

The result of computation of Construct Reliability (CR) Value are as follows:

$$CR = \frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \delta_i)} = \frac{(2.563)^2}{[(2.563)^2 + (0.807)]} = 0.890*$$

It can be concluded that all indicators arranging the Behavioral Intention to Use latent variable were reliable

Structural Equation Modelling (SEM):



Direct Affect. The size of direct effect can be seen from loading factor or from the value of standardized direct effects as shown in Appendix. Mean while, direct effect of independent variable based on the research model is shown in Table 7.

Table 7 – Direct Effect of Variable in Research

Indicator Variables	Effect Size	P-value*	Remarks
PU ← SP	0.389	0.733	Positive, not significant
PE ← SP	0.657	0.000	Positive, significant
PU ← PEU	0.550	0.047	Positive, significant
BIU ← PEU	0.363	0.915	Positive, not significant
BIU ← PE	0.363	0.042	Positive, significant

Indirect Affect. The size of indirect effect can be seen from loading factor or from the value of standardized indirect effects as shown in Appendix. Mean while, direct effect of independent variable based on the research model is shown in Table 8.

Table 8 – Indirect Effect of Variable in Research

Indicator Variables	Effect Size	P-value*	Remarks
PEU ← SP	0.695	0.000	Positive, significant
PE ← SP	-0.024	0.739	Negative, not significant
PE ← PEU	0.945	0.000	Positive, significant
PU ← PEU	0.029	0.916	Positive, not significant
PU ← PE	0.582	0.036	Positive, significant
BIU ← PU	0.626	0.000	Positive, significant

CONCLUSION AND RECOMMENDATIONS

Based above mention discusstion, it can be concluded that:

The user acceptance on supply chain simulator are as folows: directly affected (positive and significant) by perceived usefulness when supply chain application simulator is used; indirectly affected (positive but insignificant) by perceived ease of use when supply chain application simulator is used; indirectly affected (positive andt significant) by perceived enjoyment of use when supply chain application simulator is used.

The application of supply chain simulator gives an easiness in learning the bullwhip effect in supply chain. User experience when this application is used will directly affect on perceived ease of use, which later on will directly affect on perceived enjoyment, and at last it will positively and significantly affect on behavioral intention to use (the desire for recommending and using the application of supply chain simulator).

The use of supply chain simulator application will make the respondent easier to understand the meaning and kind of simulation that will be undertaken through the play role included in the application.

Based on above research result, it can be recommended:

- To determine this application as part of supply chain learning process in the class, because it will stimulate the user in the application of supply chain strategy and to see the effect on the performnce of the whole supply chain;
- To develop this application simulator towards the multy chains

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ENHANCING PUBLIC SERVICE ETHICS IN INDONESIA: COMBATING CORRUPTION AND BUILDING INTEGRITY IN THE PUBLIC SECTOR

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ABSTRACT

Corruption is one of the biggest problems faced by Indonesia and brings the impact which not only harms the finances of the state, but also a violation of the rights to social and economic society, undermining democracy and welfare, rule of law and postpones construction. Efforts to combat corruption have been conducted in Indonesia. Nevertheless, the various attempts tend to be still done partially and do not have a clear strategy. Various efforts are not able to reduce significantly the magnitude of criminal acts of corruption that occur in Indonesia. This paper tries to deliberate about the concept and meaning of the importance of public service ethics, and the eradication of corruption, its implications for the ethics of the public service in Indonesia. Public ethics play an important role in improving public services so that people can be served well and the construction can be run in accordance with its objectives based on principles of good governance.

KEY WORDS

Public service, integrity, corruption, public sector, ethics.

The issue of ethics in the public service in Indonesia less widely discussed. Ethics is often seen as an element that is less concerned with the world of public service. Whereas, in the literature on public services and public administration, ethics is one of the elements that determine public satisfaction is a successful organization. These elements must be considered in every phase of public services ranging from policy formulation, service design, the organizational structure of the service management to achieve the goal. In the public service, the act violates the moral or ethical difficult traced and questioned due to the habit of Indonesian's society prohibits people "open secrets" or threaten those who complained. Meanwhile, we also face the challenges of the future are increasingly heavy because of ethical assessment standard of service continues to change according to the development paradigm. And substantively, we also have not reached the maturity and autonomy is ethical because it is full of dilemmas. Corruption is rife in Indonesia that occurred in the public service sector, by lengthening the process of public service. Therefore, if the service can be provided in a timely manner so the public does not need to play with things that could culminate in the act of corruption. There are at least three standard services, i.e., time, speed, and cost. Standard service is a measure enacted in implementing mandatory service adhered to by the provider and the recipient of public service.

Corruption extremely has injured the public confidence, which is a public ethics is not running properly, with basic obedience as part of integrity and responsibility to the public. The ethics of public administration is the rule or standard management, moral direction to members of the organization or the job management; the rules or standards of management which are a moral direction for the public administrator in performing his task of serving the community. The precast authorization settings could lead to corruption when an official has the authority to do monopolistic arrangements and authorization without the balanced availability of transparency, clarity of procedures and administrative efforts.

The Corruption Perception Index in 2014, Indonesia ranked 117 out of 175 countries in the world with a score of 34 on a scale of 0-100 (0 means very corrupt and 100 means very clean). Data also revealed that corruption is the top ranks of 18 (eighteen) factors restricting the ease of trying in Indonesia (Thohary, Suyatmiko, Yazid, & Ratnaningtyas, 2015). Up to semester 1 in year 2016, the performance of an investigation of law enforcement officers managed to raise the status of the investigation into the case from the investigation as much as 210 cases, where the State's losses reached RP 890.5 billion and IDR 28 billion bribes, SGD 1.6 million, and USD 72 thousand, with the number of the suspect as many as 500 people (ICW, 2016).

Ethics deals with how a human behavior that can be justified. In carrying out the tasks in the public administration, then an administrator should have a responsibility to the public. This paper tries to deliberate about the concept and meaning of the importance of public service ethics, and the eradication of corruption, its implications for the ethics of the public service in Indonesia.

CONCEPTUAL PERSPECTIVE: ETHICS AND PUBLIC ADMINISTRATION

The term "ethics" comes from the Greek word 'ethos', which means "character" and ethics deals with the moral behavior in humans and how one should act. Amundsen & Andrade (2009, p.6) argued that ethics is continuous effort to ensure that people and institutions have been established, in accordance with appropriate standards and reasonable, and solidly-based. Ethics can also be defined as the philosophy and professional standards (rules of right conduct) that should be followed by the providers of public services and public administration.

Public ethics emerged from the concerns against the public service is bad because of the conflict of interest and corruption. Numerous attempts at repair the bureaucracy and political organizations have been carried out. The commissions were formed, officials replaced, but corruption failed to recede and public services to deteriorate. When the reconstruction of bureaucracy and tightening supervision done but still rampant corruption, it shows that the error is in the system of the organization itself. The crucial thing that needs to be done is to change the system of organization of public ethics by integrating into the organization of the public service. Public ethics not only emphasize the ethical codes or norms but also the reflective dimension. The public ethics will help the officials and politicians in considering public policy choices, and evaluation tools that take into account the ethical consequences. Therefore, the focus is directed at the ethical modality, namely how to bridge the gap between norms of moral and factual actions. Ethics is closely related to the public administration. Learn about the philosophy of ethics, moral values, and whereas the public administration learning about making policy, decision-making, and implementation of the policy. Ethics are abstract, and with regard to the question of good and bad, while the administration is both concrete and must realize what has been formulated and agreed upon in public policies. Talk of ethics in public administration is how to associate the two questions, how the ideas of the administration, such as effectiveness, efficiency, accountability, productivity, expediency can explain the ethics in practice, and how the basic ideas of ethics, as it embodies the good and avoid the bad ones, can explain the nature of public administration. So, expect a public administrator always uses the consideration of ethics in conducting all activities relating to the public interest. The ethics of public administration as a part of social ethics have a relationship that is very close with the ethics of the profession, political ethics, environmental ethics, family ethics, and attitude towards fellow even against criticism of an ideology, as illustrated in Figure 1.

The Figure 1 shows that an official, in carrying out his position as the public administrator must have at least a good family ethics. Even the attitude towards fellow also determines the sense of respect society because he became a mirror and model for a wider audience. In the chart indicated that the ethics of public administration between the ethics of the profession and political ethics. Assuming an administrator is a person who must apply the science of management and organization in a professional manner. They should be able to

solve tactical problems well and able to manage the Organization efficiently, as well as the responsibility to the society's extensive and diverse. To that end, the administrator is required to have a high sensitivity to the problem of politics.



Figure 1 – The Ethics of Public Administration as a part of social ethics (Source: Kumorotomo, 1992)

Ethical values should be used as a reference for the public bureaucracy in behaving to provide services to the public, as well as a standard for assessing whether the behavior and services it provides are judged to be good or bad by the public. In order to guarantee performance standards and to minimize the abuse of power by public officials, the accountability of service ethics becomes an obligation. Some value considerations in public ethics, among others effectiveness-efficiency, accountability, quality of service and responsiveness.

Public service ethics is a serious issue in public sector (Radhika, 2012). Deviation from normal standards of ethics takes various forms of corruption in the civil service (Kim, Monem, & Baniamin, 2013, p.99). Corruption is rampant in many countries, in many aspects of life (Tanzi, 1998; Pathak, Belwal, Naz, & Smith, 2008; Chêne, 2012). Corruption is like a disease that has already spread, dangerous and causes of addiction for the culprit. Most of the problems in public administration in different countries are derived from corruption. (Kim, Monem, & Baniamin, 2013, p.99).

Tanzi (1997, p.8) stated that “Corruption is the intentional non-compliance with the arms-length principle aimed at deriving some advantage for oneself or for related individuals from this behavior. Liu (1983, p. 603, cited in Dong, 2011, p.12) thus differentiates between three types of corruption: “corrupt acts such as embezzlement and bribes, which are commonplace among nations having a political system to speak of; ... appropriation of public goods, illegal trade, and housing irregularity, [which result] from a breakdown in the central allocation system and [are] commonplace among socialist nations ... [and the] rather peculiarly Chinese Communist [practices of] illegitimate feasting, feudal rites, false models, and illegal imprisonment and torture”.

Corruption is a crime that is ethically highly inappropriate and embarrassing, the corruptor was supposed to get moral and legal sanctions. Akinseye (2000) attempts at describing it as ‘mother of all crimes’ and identifies four forms of corruption as bribery, graft, and nepotism. So, in the study of the literature of public administration has been called for to improve the level of ethics in the public service, and setup of the highest level of ethics in the reform agenda.

Corruption generally occurs because of the abuse of authority, power, lack of accountability and transparency, misuse of public resources and exploiting a conflict of interest (May 2012; Peace, 2010; Martini, 2012; Olken & Pande, 2012; Neang, 2010). According to Goolsarran (2006, p.61), corruption causes a number of impacts on the economy, namely: (1) goods and services become more costly to the detriment of the quality and standard of life of the community; (2) trade is distorted because the preference is more given to goods and services which can offer a high level of bribery; 3) accumulation of long-term public debt levels are high due to the tendency of corrupt Governments, to use the loan funds from overseas to finance capital-intensive projects; and (4) miss-allocation of scarce resources and regional imbalances because of the mentality of a corrupt government officials more concerned with areas that can provide advantages for himself.

Kim, Monem, & Baniamin (2013, pp.100-103) in their research report, entitled Enhancing Public Service Ethics in Bangladesh: Dilemmas and Deterrents, explained that corruption is an action that deviates from the standard behavior. It is then described two key variables for the ethics of the Organization, namely: Level of Individual ethics and Level of Organizational Ethics. By combining both of these variables, which are named with an Ethical Grid for an organization. The attributes of these variables have different levels of effect on the controlling of corruption in an organization.

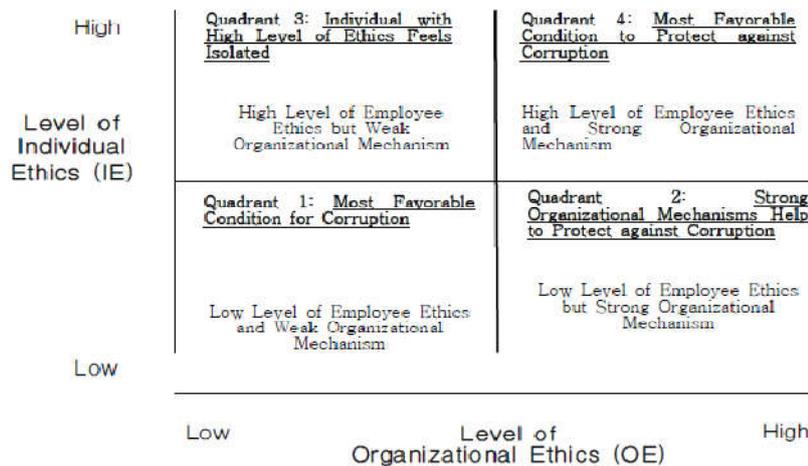


Figure 2 – Ethical Grid for an Organization (Source: Kim, Monem & Baniamin, 2013)

Each quadrant describes the position of the individual and organizational level of ethics to an organization. In quadrant 1, an employee of individually has a tendency to do corruption because of the low level of ethics. In quadrant 2, individual ethics is low but organizational ethics is high. The ability of ethics of the Organization in creating a system of accountability and transparency can suppress occurrence of corruption by individual employees. In quadrant 3, individual ethics is high but organizational ethics is low, it means an individual employee with unethical activities can easily get away with minimal punishment, either with those who have a higher ethics. In quadrant 4, both individual ethics and organizational ethics are high, corruption can be suppressed to very minimal limits by setting high ethical standards to the Organization, namely, the issue of ethics of individuals is also a problem of ethics organizations.

The importance of individual ethical standards set out in the Organization as an attempt to build a civilized and ethical culture in an organization and to bring influence to other individuals so they can suppress the occurrence of corruption. With the ethical standards expected public servants increasingly professional and was able to show that they can prioritize public services fairly and competing value added. However, the values on the standard of conduct that have been awakened in the quadrants that were presented above would be biased if then the power of ethics of individuals and of ethics of the Organization

meet with the other powerful external forces, such as the business intervention, politics, the dynasty of political economy's interest, economic stress, socio-cultural, individual mentality in the education of families or even personal conscience.

Caiden (2000) was given the idea of public service professionalism which suggests a few things about the general benefits of it, namely: (1) Meeting an identifiable social need; (2) Questioning public sector utility; (3) Advancing universal human values; (4) Improving the quality of life; (5) Undertaking continuous legal, regulatory and administrative reforms; (6) Adopting more business like methods; (7) Enforcing the rule of law; (8) Following constitutionalism; (9) Expanding public policy-making capacity; and (10) Combating bureau pathologies.

Corruption has been breaking the boundaries of ethics and many other values, therefore the corruption must be eliminated. In the concept of public services, corruption is a chronic and systemic disease that may inhibit the user, damaging the image of the Organization and the public distrust. Public service involves the public trust, public ethics prerequisite and supporting public trust in realizing good governance (OECD, 2000). Citizens expect public servants can serve the public interest fairly and trustworthy. The sense of fairness in public service can inspire the public trust. The key to public trust in government is on people's satisfaction which is the performance, integrity, responsibility and the quality of services provided (Sentanu, 2015).

CORRUPTION IN INDONESIA

Indonesia has experienced a period of transition in the governmental system since the end of the authoritarian regime of General Suharto during 32 years in 1998. Indonesia has undergone a successful transition from authoritarian rule to one of the largest democracies country in Asia and in the world. During that transition, there were some major changes to the governmental system about the regional autonomy and decentralization. The local Government has more authority and power. A national campaign against corruption has been initiated after corruption was acknowledged as a major problem affecting the Indonesian economy, politics, and foreign investments. As explained above that corruption must be curbed immediately because it may cause a devastating systemic impact productivity, economic growth and social.

In the context of Indonesia corruption has caused at least two the main impact on the economy, including: (1) Corruption is a major barrier to economic growth and give a negative impact on investment and the growth of the private sector; (2) foster a negative sentiment, and the distrust of foreign investors. Corruption is not only detrimental to the finances of the State, but also a violation of the rights to social and economic society, undermining democracy and welfare, undermine the rule of law, and postpone construction.

Snape (1999, pp. 591-600), there are at least three (3) factors that have allegedly become because of growing Corruption, Collusion and Nepotism (KKN) in Indonesia, namely: (1) political factors; (2) economic factors; and (3) factors of Javanese culture. In the view of Snape, political factors are characterized by the existence of gaps in accountability, transparency, institutional democracy, and a free press is an important factor that contributed to the widespread corruption in Indonesia, especially in the communities of the old order era and the new order era. In the era of the new order, the condition of the government is one of the reasons corruption occurred make corruption in Indonesia become an institutional system. This institutional corrupted institution needs funding for sustainability. KKN practices that occur in the new order has its roots in the cultural traditions of the past that occurred in Indonesia, especially in a culture that is applied in Java. Related to this, an amount of practice of KKN rooted in ancient Java habit so it is regarded as something natural. These include cultural habits in giving gifts to the sovereign; loyalty to the family is more powerful compared to the State; as well as Javanese concept of power, hierarchy, and patrimony.

According to the Global Corruption Barometer (Transparency International, 2011), 43% of households surveyed believe that the growth of corruption has increased in the three years preceding the survey. The Integrity Survey conducted by the Corruption Eradication

Commission (KPK) showed an increase in the average value of public sector integrity from 5.53 in 2007 to 6.31 in 2011 (on a scale from 0, low integrity, to 10, high integrity) (KPK, 2011). Until the end of 2014, Indonesia is still experiencing a relatively high corruption.

Transparency International published an annual corruption perceptions index which assesses "the degree to which corruption is perceived to occur among public officials and politicians" in all countries throughout the world. The annual corruption perceptions index uses a scale from one to ten. The higher the result, the fewer corruptions happens. In the list of their latest by 2015, Indonesia was ranked 88 (out of a total of 175 countries). Nevertheless, it should be emphasized that there is no 100 percent accurate method to measure corruption because of the unique nature of corruption itself, that is often hidden away neatly. The Corruption Perception Index 2015 in the table below shows the level of perception of corruption by voters participating in the poll from certain countries. But because the public usually has a good understanding of what is happening in the country, these numbers indicate something fascinating and interesting things.

Table 1 – Corruption Perception Index 2015

No	Country	Score
1.	Denmark	9.1
2.	Finland	9.0
3.	Sweden	8.9
4.	New Zealand	8.8
5.	Netherland	8.7
6.	Norway	8.7
88	Indonesia	3.6

Source: Transparency International, 2015.

These numbers suggest that there is a common view that showing negative about the level of political corruption in Indonesia. However, when we consider the results before, corruption index showed a more positive trend.

Table 2 – Indonesia’s Corruption Perception Index

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Indonesia	2.2	2.4	2.3	2.6	2.8	2.8	3.0	3.2	3.2	3.4	3.6

Source: Transparency International, 2015.

These are a few charts that show the position of Indonesia in some different stages.

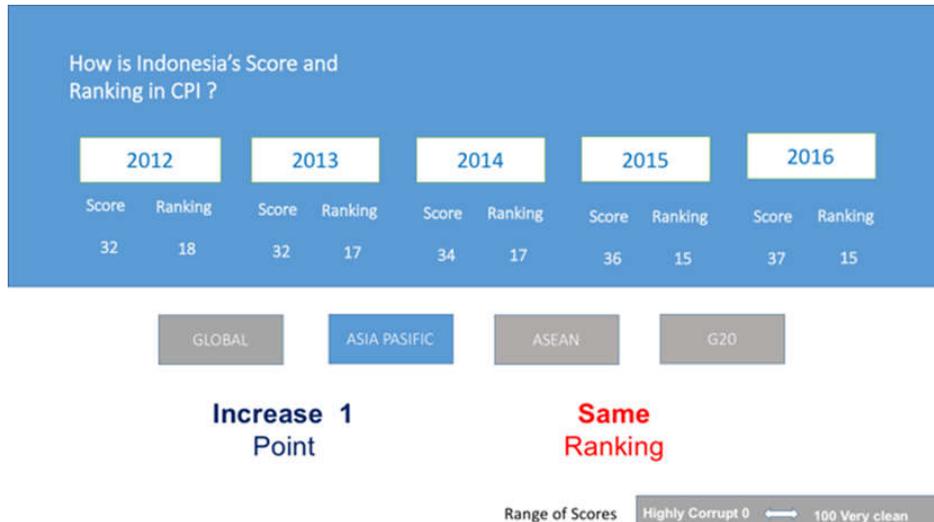
Table 3 – Indonesia’s Position in Global Corruption Perception Index



Source: Corruption Perception Index, 2016.

In Global aspects, we can see the progress of Indonesia as one of the developing countries. Since 2012 until 2016 from the chart above showing that Indonesia increases 1 point in Corruption Perception Index in globally even though decreasing 2 points in ranking. That 1 point could be a very small step and achievement for Indonesia. that lower scoring shows that Indonesia faces the condition where there is a misappropriation of funds and many others problems.

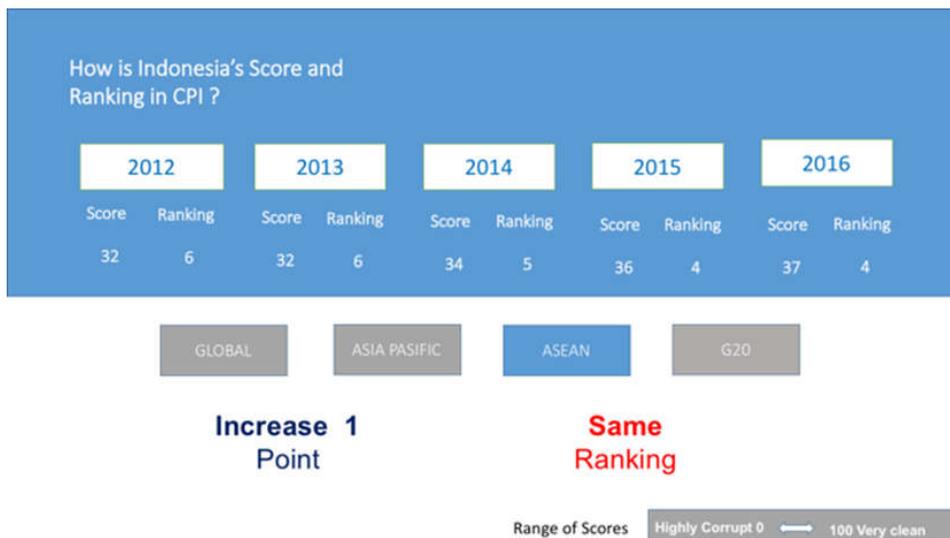
Table 4 – Indonesia’s Position in Asia - Pacific Corruption Perception Index



Source: Corruption Perception Index, 2016.

The majority of Asia Pacific countries sit in the bottom half of the Corruption Perception Index 2016, Indonesia one of those countries. This chart above shows that in Asia – Pacific category Indonesia increase 1 point and still at the same ranking in 5 years between 2012 – 2016. We can say that Indonesia as the democracy country might face the corruption problem because of lack of understanding about the democracy itself and also the number of uneducated people is still higher.

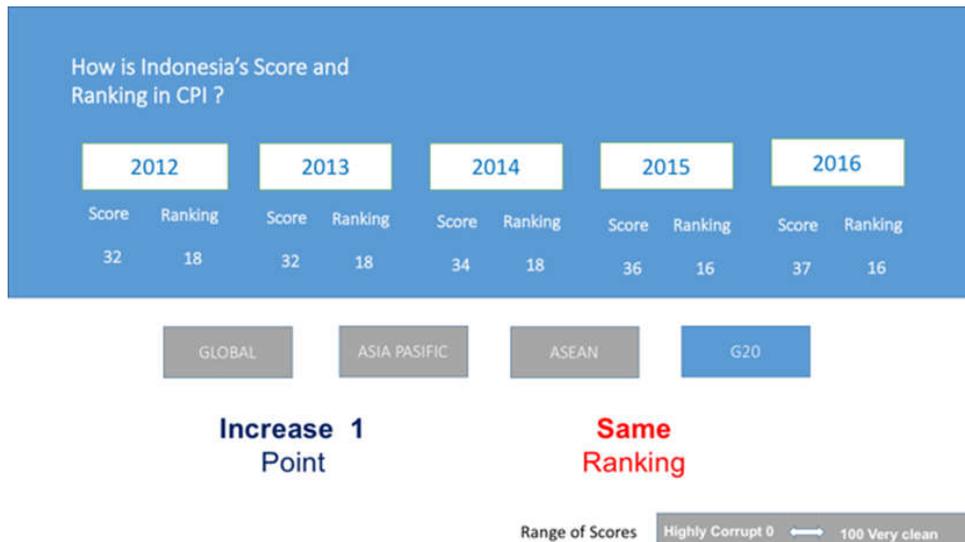
Table 5 – Indonesia’s Position in ASEAN Corruption Perception Index



Source: Corruption Perception Index, 2016.

In ASEAN, Indonesia is in the position where an increase in one point but still in the same ranking in 5 years. Singapore is still in the first ranking among all nations in ASEAN.

Table 6 – Indonesia's Position in ASEAN Corruption Perception Index



Source: *Corruption Perception Index, 2016*.

Indonesia is the one and the only member from south-east Asia and it is one of achievement according to Indonesia's government. In corruption perception index Indonesia has not passed the problem of corrupted and in-transparency bureaucracy almost in all aspects. In the period of 2005-2015 corruption in the terms of procurement of goods and services, this means that in many instances of corruption that happens in Indonesia is bureaucracy corruption. Corruption Eradication Commission (KPK) released as much as 77% of cases are cases relating to the procurement of goods and services. In recent years also identified that corruption transpired by political elites and political party members. Many politicians did not perform and functions as properly as they supposed to do, who do not perform tasks and functions properly. Many politicians who speak no manners so that sparked unrest in the community. In fact, not a few politicians who also get tangled in a legal case, that condition cannot be separated from the absence of binding legal rules regarding the code of ethics of politicians. During this time, the code of ethics of politicians only regulated by the internal party. The community cannot control. As many as 32 percents of cases handled KPK has involved politicians or party representatives.

DISCUSSION OF POLICY IMPLICATIONS

Speaking about continuing corruption in Indonesia, the impact continues into undermining the economy, the distribution of resources and public administration in Indonesia. All available data and reports pointed out that corruption is still widespread, absorbing all walks of life. The country ranks 115th out of 179 countries assessed and 23rd out of 41 countries in the Asia-Pacific region in terms of economic freedom. In particular, the country performed poorly in terms of freedom from corruption, with a score of 28 on a 0 to 100 scale. Corruption also seems to have penetrated to the local level according to Indonesia's Corruption Perceptions Index (Transparency International Indonesia, 2008). A majority of cities in the country score below the average of 4,42 (on a 0, meaning more corrupt to 10, clean, scale). By 2015 Indonesia was in the 88 positions, Indonesia got the better perceptions index ranks increase by placing Indonesia on the order of 88 with better perceptions index.

There are some basic issues regarding the author's note, the reason why is corruption still occur and are likely to be systematic. First, the prevention system for corruption that is still not integrated into the enforcement law agencies like police, prosecutors, KPK, etc. Second, the punishment that meted out for corruptor doesn't give deterrent effect. Third, Corruption is not in the curriculum. Ethic's lesson that needs to be understood by the student

from corruption did not apply as a priority at the neighborhood elementary school, middle and upper. Fourth, the influence of the political interests that involved in the educational system, and the very strong influence the course of the enforcement and the eradication of corruption in Indonesia; Fifth, ethics education at the basic level is not optimal implementation in people's lives as a result of the narrow understanding of reform towards democratic meaning is still less or not showing that it's supposed to be; Sixth, the low understanding of integrity and responsibility in the performance of the organization.

The fundamental reason public service should be given is the existence of a public interest Government responsibility. In providing these services, the Government is expected to implementing all the good governance them professionally and must take political decisions on who gets exactly in applying what, how much, where, when. Many cases prove that personal interests, family, group, party, and even a higher structure thus dictate the behavior of a bureaucrat or Government authorities. In this case, the bureaucrats do not have the "independence" in acting ethically, or in other words, there is no "ethical" in the autonomy.

Expenditure policy can cause corruption when there is a lack of transparency and oversight institutions effectively in policymaking on project investment, spending on procurement, as well as the determination of the extra-budgetary accounts. The financing of political parties and the quality of the bureaucracy can cause corruption when financing from the Government is not clear and the system of recruitment is more based upon political considerations, patron, and nepotism rather than merit as well as the absence of adequate rules regarding promotions and recruitment. For this reason, pay reform has been an important issue in public service management in Indonesia. A low poor level of salary, culture, a substandard of ethic's awareness is often used as the justification for corrupt practices by the civil servants.

As we can say that our government has been doing some practical ways to at least decrease the corruption itself. The government has been setting up the laws to decrease the corruption, such as statute book of the criminal law of Indonesia; law no.28 of 1999 on State Implementation of the Clean and Free of Corruption; Law no.31 of 1999 on Corruption Eradication, as amended by Act no. 20 of 2001; Law no. 30 of 2002 on The Establishment of the Corruption Eradication Commission; Presidential Regulation no. 55 of 2012 on The National Strategy Prevention and Combating Corruption of 2012 – 2025 for long-term planning and year of 2012-2014 for medium-term planning. It is also mentioned in the Article 5 of Law no. 28 of 1999 in the implementation of the state are free and clean from corruption and every operator state is obliged to free and commit to act free from corruption, collusion, and nepotism. Accordingly, each state apparatus must not be corrupt.

Furthermore, in Article 2 of Law no.31 of 1999 on Corruption Eradication, affirmed that:

1. Any person who knowingly acts unlawfully enrich themselves or another person or a corporation that can be detrimental to the State Finances and Economy, shall be detrimental to the State Finances and Economy, shall be punished with imprisonment for life imprisonment or imprisonment for a minimum of 4 (four) years and a maximum of 20 (twenty) years and a fine of at least Rp. 200,000,000.00 (two hundred million rupiahs) and Rp. 1,000,000,000.00 (one billion rupiah).
2. In the case of corruption as referred to paragraph (1) shall be done under certain circumstances, the death penalty can be imposed. Special materials to Law np. 30 of 2002, the following will be cited several articles which relate specifically to the handling of corruption that article 6, article 11 and article 13.

The government also creates an institution that specifically deals with corruption, called Corruption Eradication Commission (*Komisi Pemberantasan Korupsi/KPK*). There are 6 (six) national strategy focused activities in preventing and combating corruption, namely:

- Prevention;
- Law enforcement;
- Harmonization of legislation;
- International cooperation and rescue assets corruption proceeds;
- Education and culture of corruption;

- The implementation of the reporting mechanism to eradicate corruption.

As the country that needs to fight corruption, there are instances that need to be done to facing a future challenge: government's consistency in the fight against the corruption; well-conducted coaching to all civil servants; make an agreement (the fact integrity) which must be signed by all the civil servants; all the civil servants are willing to declare their wealth every certain period (6 months or 12 months) over the internet/website.

In awarding the public service, especially in Indonesia, the moral and ethical violations can be observed starting from the public policy process (proposing programs, projects, and activities that are not based on fact), public service organization design (arrangement of the structure, formalization, dispersion of authority) which is very biased against certain interests, public service management process full of fabrications and camouflage (ranging from technical, planning, financial management, human resources, information, and so on). It can be showed from, all of it looked from the properties that are not transparent, unresponsive, unaccountable, and transparent.

The weakness implementation of the code of ethics presents to lead the public service to be disrupted. On that basis, the ethics are required in public administration. Ethics can be used as a guideline, references, instructions on what to do by the bureaucratic apparatus in the conduct of political policy, and it is used as a default judgment. We can see from it if the behavior of the bureaucracy officials in running political policy can be said to be good or bad. Ethics in the public service there is a set of values that can be used as citations, references, and guide for the public bureaucracy in carrying out its duties, namely: efficiency, impersonal, merit system, responsible, accountable, and responsiveness.

Public administration is making the important role in reducing the factor of corruption and bureaucracy is part of that public administration. Indonesia as one of the developing country is now facing all the constructions and progressing life to reach the standard to called as a developed country but we need to put consideration that there's the reason why we still called as a developing country, especially in bureaucracy. Many of bureaucracy that exists is very complicated and intransparent. Intransparent means too many people involved in handling one problem/process. Beside intransparent, the other problem is also because all the data still in the manual process if the government could make it into digital/online maybe it can be reduced the problem that can cause corruption. This is what all the developing countries have done in all bureaucracy in all public administration sectors. As a developing country, we need to adopt good things from developing country and apply it to our case.

CONCLUSION

In practice of the public service currently in Indonesia, the provider must study the ethical norms as a guide to the vagaries of the Act. Any corruption of the powers delegated. The Corruptor is the people who gain power or authority of the enterprise or the State and use it for other interests. The increasing of public participation in public services in order to realize the transparency and accountability in the implementation of the service, develop a conception by establishing the participation of citizens in public service functions to build on creativity and community involvement in the development process.

Public accountability and public participation are instrumental that is considered able to overcome corruption criminal act both as a result of factors that are direct and indirect or resulting from factors that are derived from the individual and structural characteristics so that it can improve the quality of public services. Public accountability and public participation can also be correspondingly performed as a strategy that focuses both on the public, market, legal, or political. Implemented ethics in public administration is becoming a necessity for public administrators because of the ethics guidelines and serve as a reference for the public administrator in the exercise of those powers and duties, as well as the standard assessment of the behavior and actions of the public administrator. With good public administration ethics that have organizational culture and good management are expected to foster a culture of the Organization and management of good governance.

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THE INFLUENCE OF HUMAN RESOURCE DEVELOPMENT TOWARD THE OFFICIALS' PERFORMANCE: A STUDY AT MAYOR'S OFFICE OF AMBON, INDONESIA

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ABSTRACT

The purpose of this study is to analyze the effect of formal education, education and training program, and empowerment of the officials' performance. This research is an explanatory research using quantitative approach. Data were collected through survey. Population in this research was the officials at Mayor's Office of Ambon with 96 people as the sample. Data were analyzed using multiple regressions with SPSS. The results showed that formal education, education and training program, and empowerment simultaneously had a significant effect on the officials' performance. Partial test results showed that both education and training program and empowerment had a significant effect on the officials' performance. The dominant variable affecting the officials' performance was education and training program. In addition, it was also found that education did not affect the performance of the officials.

KEY WORDS

Human resources, development, education, training program, empowerment, performance, officials.

The purpose of good governance in the implementation of regional autonomy leads to the realization of democratic, responsive, accountable governance and the performance improvement of government organizations in providing services to the community. The service of a public organization can be successful and high-performing in a flexible and dynamic environment. Organizational flexibility is a condition that takes the flexibility into consideration in its service practices which is reflected in an operational, structural and strategic capabilities hierarchy (Grant, 1996; Ansoff, 2007). Reliable human resources handle and run maximum service within a government organization.

Human resources are assets and play an important role in the organization. Humans are an important, varied and sometimes problematic source for some organizations to occupy higher or lower levels (Mathis and Jackson, 2006). Mathis and Jackson (2006) also state that human resources are seen as increasingly important factor for an organization success. Nowadays, many organizations realize that the "human" element in the organization can provide competitive advantage.

Human resources are the central factor in an organization. Thus, human resources are a vital tool in determining the success of an organization. Therefore, individuals within the organization need to be developed in order to improve knowledge, skill, and attitude change ability, which ultimately can improve the officials' performance of and the organization's performance as a whole.

Every government organization, both at the provincial and regional levels, requires the arrangement of human resources to enable the organization to operate systematically and efficiently. In fact, there are still many regional governments that have not developed a comprehensive human resource management system yet. Whereas, human resource management is important in the organization to respond correctly and appropriately toward changes in the external environment of the organization.

One of the important instruments to improve the officials' performance in an organization, in this case government organization especially at Mayor's Office of Ambon, is through human resource development. Human resources development can be done through formal education, education and training program, and the officials' empowerment. Formal

education is one of the beneficial ways to improve the ability of the officials and ultimately can improve their performance (Ng and Feldman, 2009). Other human resources development is through the implementation of education and training program. The education and training program is an effective way to improve individual technical skills (Khan *et al.*, 2011) and can improve the officials' performance and productivity (Elnaga and Imran, 2013; Amin *et al.*, 2013). In addition to formal education and education and training program, human resources development is done through empowerment of the officials. The officials' empowerment is done by giving the officials power and authority to innovate and to make decisions. Performance would be improved through the officials' authority in working and making decisions (Nzuve and Bakari, 2012; Chen, 2011; Fadzilah, 2006).

Mayor's Office of Ambon is an organization whose duties and functions serve the needs and interests of the community with the vision of "Advanced, independent, religious, sustainable and harmonious community-based Ambon". One of its missions is to organize and to improve the bureaucracy professionalism in public service. In implementing this mission, human resources development needs to be executed.

Regional Government of Ambon has implemented a new model of power structure and the design of the new Regional Financial Information System as stipulated in Government Regulation Number 56 Year 2005 and Minister of Home Affairs Number 13 Year 2006. The officials' behavioral factor in Ambon's SKPD (Regional Work Units) in accepting new system is related to the officials' adaptation and involvement in designing a new system. With the adaptation ability, the officials will strive maximally to adjust to changes in their work environment so that the system implementation process can be accepted. Thus, the development of human resources is necessary in the application of new systems utilizing information technology.

In addition, Presidential Working Unit for Development Control and Supervision (UKP4) has set Ambon as Open Governance city in 2012, in which one of the recommendations is the information technology approaches, including in the education sector. On October 25th, 2012, PT. Telkom Ambon held a socialization of Business Solution for Government (e-Gov) products for SKPD leaders in Ambon municipal government. The socialization of Telkom's products is important and strategic for the needs of information technology services that have been transformed into primary needs for all parties. Information technology services offered by PT. Telkom are very helpful for Ambon municipal government in running the administration. The purpose of this technology use is the efficiency and effectiveness of the officials to realize the excellent service of global competitiveness in accordance with the vision of the organization. With the development and implementation of information technology at Mayor's Office of Ambon, human resources was ready to face the challenges in using information technology.

Sulistiyani (2004) states human resources development, especially in government organizations, should be seen as a whole both in physically and mentally dimensions. To achieve and improve good performance, human resource development is conducted through formal education, education and training program, and the officials' empowerment. The above topics attract the author's interest in conducting research on "The Influence of Human Resource Development on the Officials' Performance" (Study At Ambon Mayor's Office), which aims to 1) identify the significant influence between education, education and training program, and empowerment of the officials' performance simultaneously; 2) recognize the partial significant influence between formal education, education and training program, and empowerment of the officials' performance; 3) identify the dominant variables affecting the officials performance.

The Study of Conceptual Theory and Framework. The officials' development is the process of improving the conceptual, technical and morale skills of the officials. Heneman *et al.* (1987) argues that development is the process of producing one's skills and gaining experience of success in his/her current job as well as future tasks. Armstrong (2003) states that the human resources development is behavioral changes through experience. The officials' development can be done through formal education (school), non-formal education (courses, training, upgrading) as well as informal education (self-study, work

experience, etc.). The officials' development must be planned and directed, meaning that there is a plan to place the relevant officials to more appropriate position in accordance with the needs of the organization.

Education is a process and a series of activities that lead individuals to the possibility of understanding and developing the knowledge, skills, and thoughtful values which is not limited to the activities of a particular field but rather provides a broad insight into formulated, analyzed and solved issues. Leopold (2002) suggests that education is an activity aimed at developing the knowledge, skills, morale, and understanding required for all aspects of life and not knowledge and skills that are concerned only with a limited field of activity.

Bernardin and Russel (1993) states that training is an attempt to improve the officials' performance during the current tenure. Further, training is an activity designed to improve the officials' performance in the designated work. Sikula in Hasibuan (2005) argues that training is a short-term educational process using systematic and organized procedures, so that the operational officials learn technical knowledge and skills for a particular purpose. Dessler (2004) suggests that training refers to the methods used to provide new or old officials the skills they need to do the job.

Sulistiyani (2004) states that one of the possible human resource development strategies is to create democratic working conditions and to encourage individual creativity through the officials' empowerment activities. Officials' empowerment is giving the officials the opportunity to innovate and to create, granting the officials authority at work, and giving the officials authority and facility at decision-making. Officials' empowerment aims to provide opportunity and circumstance which encourage the officials' process of learning, creativity, innovation and courage to take decision and achieve results which in line with the expectations.

The definition of human resource development in this research is the development of the officials through formal education, education and training program, and the officials' empowerment to improve the officials' performance.

The hypotheses in this study are as follows:

H₁: Formal education, education and training program, and empowerment simultaneously have a positive and significant impact on the officials' performance;

H₂: Formal education has a positive and significant effect on the officials' performance;

H₃: Education and training program has a positive and significant effect on the officials' performance;

H₄: Officials' empowerment has a positive and significant effect on the officials' performance.

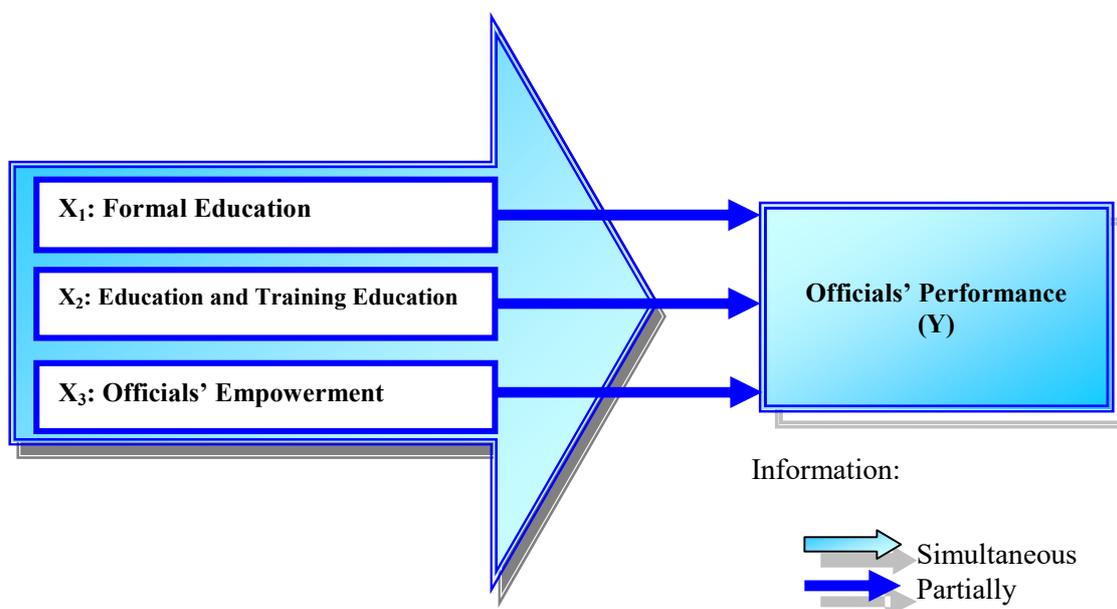


Figure 1 – Conceptual Framework

METHODS OF RESEARCH

This research is explanatory research with survey approach. This study uses a quantitative approach because it explains the relationship between research variables through hypothesis testing and generally data are presented in the form of numbers calculated through statistical tests.

The study was conducted at the Ambon Mayor's Office. The populations of the study were the officials of SKPD at Mayor's Office of Ambon, with the total of 2546 people. Sampling used purposive sampling, in which the criteria used to determine the sample were: 1) the officials with civil servants status and not honorary status; 2) minimum education level of senior high school; 3) have followed the education and training program. Determination of the number of samples was based on the Slovin formula (Umar, 2001) with a precision of 10%. As a result, the samples in this study were 96 respondents. The data used was "cross section" data. Data was collected through a questionnaire. Question items in this research were scored using Likert scale to measure the indicator. Thus, the variable was converted into a measurable indicator which could be used as a benchmark to create question items. Alternative answers consisted of 5 (five) alternative options having very low to very high levels (1 to 5) which were applied varies according to the question.

Indicators of the formal education variable were adapted from Heneman *et al.* (1981) with 3 items of questions, namely the implementation of study assignments for the officials', the relevance of the study program with the field of work, and the application of the study results at work. Indicators of education and training program were adapted from Handoko (2001) with 3 item statements, namely the effectiveness and efficiency of education and training programs, materials and facilities during education and training program, and the application of education and training outcomes at work. The officials' empowerment indicators were adapted from Sulistiyani (2004) with 5 items of questions, namely the officials' opportunity to innovate, the officials' opportunity to be creative, the officials' authorization in decision-making, the officials' authorization in completing the tasks, and available facilities for the officials to make decisions. Officials' performance indicators were adopted and adapted from Bernardin and Russel (1993) with 3 items of questions, consisting of the officials' work quality, the quantity of completed work, and punctuality in completing the work. Multiple regression analysis using SPSS software was used to test the hypothesis.

RESULTS AND DISCUSSION

Validity and Reliability Test. From the result of validity test, all question items had positive correlation value and was more than 0.5 (Hair *et al.*, 2006). It meant that all instruments in this research were valid. Similarly, reliability test results showed that all variables had a coefficient value of Alpha Chronbach more than 0.6 (Hair *et al.*, 2006; Sugiyono, 2003). All instruments used in this study were reliable.

Multicollinearity. This test aimed to test whether the correlation between independent variables were found in the regression model. A good regression model should not have a high or perfect correlation between independent variables. Based on the analysis, the results were tolerance > 0.1 and Variance Inflation Factor (VIF) < 10, showing that the data did not contain multicollinearity.

Heteroscedasticity. The heteroscedasticity test aimed to determine whether absolute residual variation was similar or not for all observations. If the assumption of non-occurrence of heteroscedasticity did not met, then the estimator became no longer efficient in both small and large samples, Gujarati (1997). Comparison between significance coefficient and alpha levels can be performed to identify the heteroscedasticity (Sudarmanto, 2004). The significance value of each variable against the residual absolute was more than 0.05. It meant that the regression equation had homoscedasticity or did not contain heteroscedasticity.

Normality. Normality test aimed to test the normality of the distribution of dependent variables and independent variables. Normality test data in the study was conducted by

examining the distribution of normal or near normal data. Based on the analysis, the research data was normally distributed, because the value of α was more than 0.05.

Multiple Regression Analysis. Multiple regression analysis was conducted by including the independent variable of Formal Education (X1), Education and Training Program (X2) and the Officials' Empowerment (X3) on the dependent variable of the Officials Performance (Y). Table 1 presents the result.

Table 1 – Regression Analysis

Variable	Regression Coefficient	Beta (β)	T-count	Partial Correlation	Significance	Information
Formal education	.009	.008	0.110	-0.54	.604	Not Significant
Education and training program	.502	.424	4.281	0.409	.000	Significant
The officials' empowerment	.276	.375	3.781	0.346	.001	Significant
R = 0,740; $F_{table} = 2,70$; $R^2 = 0,548$; $t_{table} = 1,660$; Adjusted $R^2 = 0,533$; $F_{count} = 37,145$						

Source: Result of Data.

Based on the above results, multiple linear regression equation could be made as follows:

$$Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

$$Y = 0.008 \text{ Formal Education} + 0.424 \text{ Education and Training Program} + 0.375 \text{ the Officials' Empowerment}$$

In Table 1, R value was 0.740, indicating that the correlation between the independent variable (X) to the dependent variable (Y) was strong or close. The value of the adjusted determination coefficient (adjusted R²) of 0.548 meant that the independent variable (X) contributed to the dependent variable (Y) of 54.8%. The remaining contribution of 45.2% was explained by other variables which was not included in this research.

Hypothesis Testing:

Hypothesis 1: Formal education, education and training program, and empowerment simultaneously have a positive and significant effect on the officials' performance.

F_{count} value of 37.145, F_{table} value of 2.70, and $F_{count} (37.145) > F_{table} (2.70)$. Thus, in this study, H₀ was rejected and H₁ was accepted, meaning that simultaneously the three independent variables of formal education, education and training program, and the officials' empowerment as one had a significant influence on the officials' performance variables.

Hypothesis 2: Formal education has a positive and significant effect on the officials' performance.

The result of partial regression analysis between formal education on the officials' performance was $t_{count} = 0,110 > t_{table} = 1.660$. Therefore, H₂ was rejected, meaning that formal education variable had noeffect to the officials' performance variable.

Hypothesis 3: Education and training program have a positive and significant effect on the officials' performance.

Regression and partial analysis results between the variables of education and training program on the officials' performance variable was $t_{count} = 4.281 > t_{table} = 1.660$. Thus, education and training program had a positive and significant effect on the officials' performance

Hypothesis 4: The officials' empowerment has a positive and significant effect on the officials' performance.

Result of regression and partial analysis between work environment variable (X₃) to the officials' performance variable (Y) was $t_{count} = 3,781 > t_{table} = 1.660$, so H₄ was accepted. It meant that the officials' empowerment had a positive and significant impact on the officials' performance.

Based on the results of regression, the officials' empowerment has a dominant influence on the officials' performance variables. This can be seen from the highest t_{count} value of 4.281, β value of 0.424, and partial correlation value (r) of 0.409.

DISCUSSION OF RESULTS

The Influence of Formal Education on The officials Performance. Human resource development conducted at Mayor's Office of Ambon is through continuing formal education to the officials for higher education level, with the aim to improve intellectual ability, insight, and the officials' skill in achieving maximum officials' performance.

The findings of this study indicate that the implementation of formal education program had no effect in improving the officials' performance. Although human resources development through advanced formal education was developing three aspects of intelligence, namely the cognitive, affective and psychomotor intelligence, but in reality it did not affect the officials' performance. Formal education had no significant effect on the officials' performance, as it related to the officials' need for technical issues related to the use of technology at work.

The results of this study are not in line with the research conducted by Ng and Feldman (2009), and Trianingsih dan Surani (2006), which states that formal education influences the improvement of the officials performance. The findings of this study are not in line with Flippo's (2002) statements who argue that formal education is important in improving the general knowledge of individuals as well as increasing mastery of theories and skills in decision-making on issues concerning activities to achieve goals. The results of this study are in line with research conducted by Lazim and Triyaningsih (2013) who also found that formal education has no effect on the officials' performance.

The Influence of Education and Training Program on the Officials' Performance. Besides through formal education, human resource development at Ambon's Mayor Office was conducted through education and training program in the form of practice-oriented short-term education and training program to provide the officials knowledge about the techniques (skills) and expertise in a particular field of work. In terms of the relevance of the program material to the employment field, it was found that the relevance of education and training materials was greater than the relevance of the material in formal education program. This condition indicated that education and training programs were specially designed to provide specific knowledge and technical skills in accordance with the work the officials did, especially in the use of technology.

The results of this study indicated that education and training program had a positive and significant effect on the officials' performance, meaning that appropriate education and training program could improve the officials' performance. Education and training program had very dominant influence on the officials' performance. The results of research which stated that education and training program affected the performance of the officials' are in line with the findings of Kum *et al.* (2014), Khan *et al.* (2011), Elnaga and Imran (2013), Amin *et al.* (2013), Dartha (2010), Sinaga (2014), Trianingsih dan Surani (2006).

Implementation of education and training programs conducted by the Mayor Office of Ambon run well because the education and training program was done efficiently and effectively. The officials felt that the education and training program were efficient because the time was short enough so it did not disrupt their duties. Short-time program also made small-cost budget. The officials argued that education and training programs were effective because the goals or targets of education and training programs which were oriented to the delivery of material knowledge and technical skills were in accordance with their specific duties. Some weaknesses experienced by the officials during the implementation of this education and training program were inadequate facilities, very limited types of education and training program, and lack of equal opportunity for the officials to attend education and training program. Education and training program should not simply fulfill the formalities demands such as structural education and training program, functional education and training program, and technical education and training program, but rather those that are

truly oriented towards the demands of professionalism and the officials' competence which are in line with their main tasks and functions.

The Influence of the Officials' Empowerment on the Officials' Performance. In addition to formal education and education and training program, human resources development undertaken to improve the officials' performance was through the officials' empowerment. The officials' empowerment was done through providing the officials opportunities to innovate and to create, granting authority at decision-making and granting authority and facility at work. The purpose of the officials' empowerment was to provide opportunities and conditions that encourage the learning process, creativity, innovation and courage the officials to make decisions and achieve results in accordance with expectations.

The results showed that the officials' empowerment had a significant effect on the officials' performance. The results of this study are in line with the theory which states that empowerment is an important tool to improve performance and increase organizational effectiveness, and empowerment is the concept of giving people more responsibility for what they do. Further, empowerment is a process to improve efficiency and make individuals produce greater contributions.

This finding is in line with research conducted by Nzuve dan Bakari (2012), Chen (2011), Fadzilah (2006), Isrorina and Setyowati (2009). The officials' were empowered and authorized by the leaders in making decisions.

The results of this study provide the theoretical and practical implications associated with the development of human resources. Theoretically, the development of human resources through the implementation of education and training program is very influential in improving the officials' performance. Proper education and training programs will be very useful for the officials to improve their ability to work. In addition, the officials' empowerment can also improve the officials' performance. The officials who are empowered in decision-making and are empowered effectively will show better performance.

CONCLUSION AND RECOMMENDATIONS

Based on the results of the analysis and discussion, human resources development consisting of advanced formal education, education and training program, and empowerment as one had a significant effect on the officials' performance. Education and training programs consisting of the effectiveness and efficiency of education and training activities, the relevance of the program to the work needs and the feasibility of educational and training facilities contributed greatly in improving the officials' performance at Mayor's Office of Ambon. The officials' empowerment, which consists of providing the officials opportunities to innovate and to create, authority in decision-making and providing authority and facilities to the officials at work also had an effect on improving the officials' performance. Formal education, which consists of the implementation of study assignments, the relevance of the study program with the field of work, and the application of study results at work, had no effect in improving the performance of the officials' at Mayor's Office of Ambon.

Research and data collection in this research was cross section, in which data was only taken in one particular time. This affected the findings of the research variables causality. Therefore, it is necessary to develop future research to use longitudinal study to study human resource development variable and the officials' performance.

Education and training program greatly affected the officials' performance. Therefore, the leaders at Mayor's Office of Ambon should implement appropriate education and training programs in accordance with the officials' needs, with adequate materials and facilities. In addition, the leaders should pay attention to the officials' empowerment through the authority to innovate, create and make decisions, so that the officials could apply their maximum skills and competencies.

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**THE ROLE OF SOCIAL CAPITAL AND PARTICIPATION
ON THE TECHNICAL EFFECTIVENESS OF IRRIGATION MANAGEMENT:
A CASE STUDY OF NALAN DISTRICT IRRIGATION AREA**

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ABSTRACT

Some of the most common challenges faced in irrigation systems are inefficient water usage because of damaged irrigation networks in various level and insufficient irrigation management. The objective of this study is to assess the role of social capital and participation towards technical effectiveness of irrigation management in Nalan Irrigation Area in Bireuen district. A common problem in the Nalan Irrigation Area is the large fluctuation of water discharge between the rainy and dry seasons. It is found that the existence of social capital will increase the participation in establishing the technical effectiveness of irrigation management.

KEY WORDS

Social capital, participation, technical effectiveness, irrigation, management.

Water is a basic resource that supports agricultural production activities. The existence of irrigation water and its system must be well-maintained and optimized in achieving food security. According to Hasan (2005), so far, the contribution of irrigation development to food security is quite big; it is 84% of national rice production is sourced from irrigation area. Some of the common challenges faced in irrigation systems are irrigation networks that have been damaged under several jurisdictions and the lack of optimum irrigation management resulting in water utilization inefficiency. According to *Direktorat Jenderal Sumber Daya Alam Kementerian Pekerjaan Umum* (2015) about 53, 89% of irrigation are in good condition, 13.30% in slightly damaged condition, at 16, 84% were moderately damaged and 15.97% in severely damaged condition. The 80% damaged irrigation is the irrigation under the Province and Regency authorities.

Various problems occurred in irrigation management led the Government continues reforming irrigation management policy. In 2015, the Government issued the Decree of *Peraturan Menteri PU dan Perumahan Rakyat* No: 30/PRT/M/2015 on Farmer/P3A/GP3A/IP3A's participation in irrigation management which strengthens the institutional presence of *Perkumpulan Petani Pemakai Air (P3A)* and the *Gabungan Perkumpulan Petani Pemakai Air (GP3A)*, (*Direktorat Jenderal Sumber Daya Alam Kementerian Pekerjaan Umum*, 2015). In the diversity of the Indonesian people, the consideration of the specificity of each local community and region in irrigation management should receive the main attention. Therefore, the local wisdom of irrigation management institution will be maintained, such as *Subak* in Bali, *Lebak Lebung* in South Sumatra, *Tuwawa* in East Java, *Mitra Cai* in West Java and *Darma Tirta* in Central Java while overseas local wisdom related to irrigation network management which is quite famous like *Zanfera* in Philippines, *Shramadana* in India, and *Khageri* in Nepal.

Independent irrigation management by P3A is still constrained by the weak economic power both in the farmers' economic activities of and the implementation of irrigation management activities. The social capital in irrigation management that developed at P3A-level becomes the determining factor of irrigation management sustainability. The research

conducted by Rohmani et.al (2015) shows that social capital has a significant effect on the management of irrigation on the welfare of farmers in Sukoharjo District, Central Java Province. Alfiasari's research on social capital analysis in community-based business groups also shows the result that the adequacy of social capital affects the development of community-based economy in the form of groups (community).

According to Putnam (1995) the amount of social capital in a community has an influence on the improvement of various useful outputs to the community. According to Inayah (2012) the increased social capital will increase the community's participation in development programs and better local governance system. Increased community participation can be recognized by increasing public awareness of the surrounding environment and increased involvement in social organizations. According to Kasih (2007), a good social capital be able to establish good institutional performance as well. Kusumartono (2003) also stated that social capital plays a dominant role towards the implementation of optimal irrigation management. Social capital plays a role in regulating collective action and increasing participation in irrigation management. Farmer community participation / P3A in irrigation management will increase ownership, sense of responsibility and improve the ability of the community in establishing the technical effectiveness of irrigation management.

The most well-known irrigation area in Aceh is the Nalan Irrigation Area in Bireuen district. The Nalan Irrigation Area is an irrigation that becomes the authority of the Aceh Province with 2,130 acres land area. The challenges often faced in managing the Nalan Irrigation Area are the occurrence of large fluctuations between the rainy season and the dry season so that water rotation system should be applied in the dry season to meet the water for the planting area in this Irrigation Area. Farmers in Nalan irrigated areas plants two times a year and in the dry season the water discharge is decreasing and should do the applying the water rotation system per eight (8) hours to ensure the sufficient water availability to agricultural areas and social capital plays an important role here. Therefore, it is important to research the role of social capital and participation in the technical effectiveness of irrigation management in the Nalan District Irrigation Area Bireuen.

METHODS OF RESEARCH

The location of this research is located in the Nalan Irrigation area in Jeunieb Sub-District, Bireuen District and which is the under the authority of Regional Irrigation Authority in Aceh. The objective of this research is a member of the *Perkumpulan Petani Pemakai Air (P3A)* located in the Nalan Irrigation Area, Jeunieb Sub-district, Bireuen District. The scope of this study is limited to social capital and participation in the technical effectiveness of irrigation management. The population in this research is all members of *Perkumpulan Petani Pemakai Air (P3A)* of Nalan District Irrigation Area Bireuen. Nalan Irrigation Area has 2,130 acres land area with 30 members of *Perkumpulan Petani Pemakai Air (P3A)* in 30 villages. Each P3A in the upstream, middle and downstream areas were taken again as many as 10 respondents of P3A members who are in the upstream, middle, and downstream as well. So from each member of P3A in upstream are 40 respondents, P3A member in middle part is 40 respondents and member of P3A downstream of 38 respondents. So the total respondents in this study are 118 respondents.

Data collection was done by structured interview through questionnaires that provides multiple answers, this questionnaire is used to obtain following data as: *Social Capital* Variable with three aspects (1) Trust, (2) Social Networking, (3) Social Norms, *Participation* Variable and *Irrigation Technical Effectiveness* Variable. Respondents for data collection using questionnaires are farmers who are members of a *Perkumpulan Petani Pemakai Air (P3A)* in Nalan Irrigation Area, Bireuen District. Operational limitation of research variables consist of the *technical effectiveness of irrigation management* as the *dependent* variable, *participation* as an *intervening/mediating* variable, and *social capital* as an *independent* variable.

RESULTS AND DISCUSSION

The research was conducted in the Nalan Irrigation Area of Jeunieb Sub-district of Bireuen District which is geographically located at 4°54' - at 5°21' North Latitude and at 96°20' - at 97°21' East Longitude. Bireuen regency is adjacent to *Malaka* Strait in the north side, Bener Meriah and Central Aceh in the south side, North Aceh in the east side, and Pidie Jaya and Pidie in the west side. Nalan Irrigation Area is an irrigated area which has right and left *intake* which already has a main building (fixed weir), building site (tapped weir) and complementary buildings. Nalan Irrigation Area irrigating 2230 acres rice fields Jeunieb and Peulimbang sub-district. Nalan Irrigation Area takes water from the Nalan River and irrigates 30 villages including: Balee Daka, Tupin Panah, Matang Kule, Paloh Pupu, Lancak Bungo, Alue Seutui, Lhok Kulam, Ulee Blang, Uten Pupaleh, Blang Ruubok and Sampo Ajad. In Nalan Irrigation Area is hydrologically divided into three regions: upstream (*upper stream*), middle (*middle stream*), and downstream (*lower stream*).

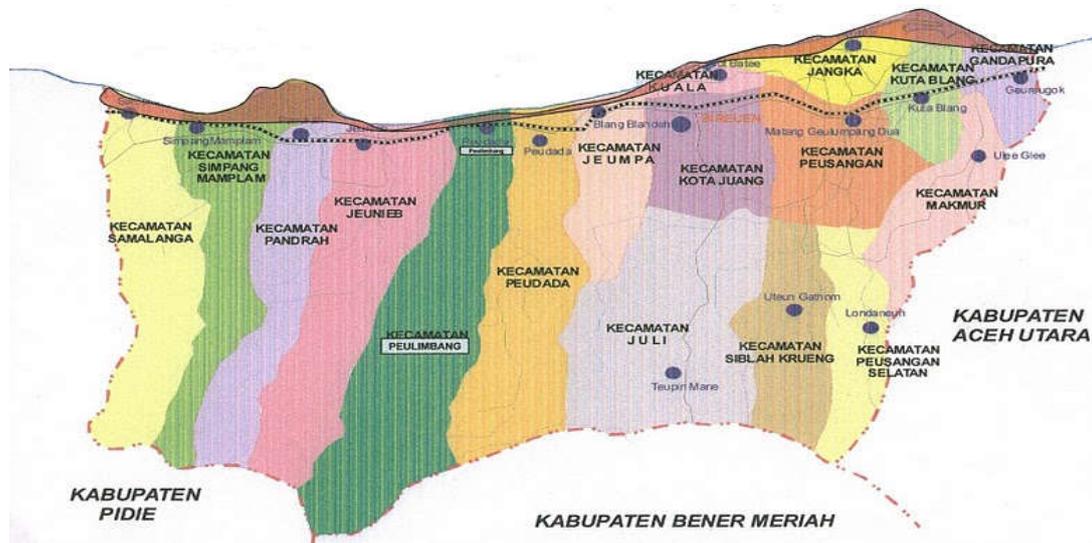


Figure 1 – Bireuen District

According to *Badan Pusat Statistik* (2009), the age can be classified as follows: young (<39 years old), middle-age (39-51 years old), and elders (> 51 years old). The age distribution of farmers in this study can be seen in Table 1 below:

Table 1 – The Age Distribution of Respondents

No	Age	Cate- gory	Hydrological Areas			Hydrological Areas		
			Upstream (person)	Middle (person)	Down-stream (person)	Upstream (%)	Middle (%)	Down- stream (%)
1	25- 38	Young	11	10	10	9.3	8.4	8.4
2	39- 48	Adult	18	17	19	15.25	14.4	16.10
3	49- 65	Old	11	13	9	9.3	11.01	7.6

Source: Primary Data Processed (2018).

Based on Table 1 above, it can be seen that the age of active farmers as *P3A* members is dominated by adult category (39-48 years) in upstream hydrological area consisted of 18 people or 18.25% percents, in middle hydrological area consisted of 17 people or 14,4 percent and in downstream hydrological areas consist of 19 people or 16.10 percent. The activeness in the adult category as the member of *P3A* is in accordance with Azwar (2016) which states that age has a direct effect on one's work productivity where the

the severity of duties and responsibilities of *P3A* members makes the community is dominated by members in adult category. The land area is crucial to be successful in farming. Sajogyo (1977) as well as *Badan Pusat Statistik* (2009) classifies farmers in Java into three categories according to land ownership: *small-scale farmers* with farmland area <0.5 acres, *medium scale* with farming area of 0.5-1.0 acres, and *large scale* of farmland area > 1.0 acres.

Table 2 – The Land Area Distribution of Respondents

No	Education	Category	Hydrological Areas			Hydrological Areas		
			Upstream (person)	Middle (person)	Down-stream (person)	Upstream (%)	Middle (%)	Down-stream (%)
1	<0.5 acres	Small	2	2	3	5	5	7.8
2	0.5-1 acres	Medium	25	20	25	62.5	50	65.7
3	> 1 acres	Large	13	18	10	32.5	45	26.3

Source: Primary Data Processed (2018).

The analysis of social capital and participation relations on the technical effectiveness of irrigation management is very important to be done to see how far the relationship between these variables affects each other.

Table 3 – Coefficient of Social Capital and Participation on Effectiveness Technical Management of Irrigation

No	Path	Unstandarized Beta	Standarized Beta	p-value	Decision
1	Social Capital towards Participation	0.086	0.269	0.003	Significant
2	Participation towards Effectiveness	0.415	0.355	0.000	Significant
3	Social Capital towards Effectiveness	0.048	0.129	0.163	NotSignificant
4	Social Capital through Participation towards Effectiveness	0.014 & 0.404	0.036 & 0.345	0,000	Significant
5	Trust towards Participation	0.178	0.209	0.023	Significant
6	Trust towards Effectiveness	0.102	0.267	0.267	NotSignificant
7	Trust through Participation towards Effectiveness	0.030 & 0.408	0.030 & 0.349	0,000	Significant
8	Network towards Participation	0.162	0.267	0.003	Significant
9	Network towards Effectiveness	0.042	0.060	0.520	NotSignificant
10	Network through Participation towards Effectiveness	-0.27 & 0.427	-0.38 & 0.365	0,000	Significant
11	Norms towards Participation	0.114	0.133	0.151	NotSignificant
12	Norms towards Effectiveness	0.158	0.158	0.088	Significant
13	Norm through Participation towards Effectiveness	0.113 & 0.398	0.113 & 0.340	0,000	Significant

Source: Primary Data Processed (2018).

Based on the analysis results in the table 3 above, it shows that *social capital* significantly influence the *participation* where the *p-value* is 0.003, so the hypothesis is accepted because *p-value* <0.005. The effect in aggregate of *social capital* on *participation* can be seen from the value of *standardized coefficients B* that is 0.269. The value is used to see how much influence of *social capital* towards *participation*, where the influence of *social capital* in aggregate towards the *participation* is 26, 9%. This means that the participation variability can be explained by the of *social capital* variables in aggregate as big as 26, 9%. The relations of *participation* towards *technical effectiveness of irrigation management* according to the analysis results in the table above also shows that the *participation* give a significant effect on the *technical effectiveness of irrigation management* in which is the *p-value* is 0.000 < 0.005. The influence of *participation* towards *technical effectivity of irrigation management* can be known from *standardized coefficients B* value that is equal to 0,355.

The value is used to see how big the influence of *participation* towards *technical effectiveness of irrigation management*, where the influence value given is as big as 35, 5 %.

The relationship of *social capital* in aggregate towards *technical effectiveness of irrigation management* showed no significant effect on *technical effectiveness of irrigation management* because its *p-value* is $> 0,05$ which is 0.163. The relationship analysis between *social capital* in aggregate through the *participation* towards *technical effectiveness of irrigation management* according to analysis results in the table above it shows that the in aggregate of *social capital* through *participation* significantly influence the *technical effectiveness of irrigation management* because its *p-value* is < 0.005 which is 0.000. The value of *standardized coefficients B* is used to determine the relationship between the studied variables. Based on the value of *standardized coefficient B* in the above table, it can be seen that the *standradized* value of *coefficients B* for *social capital* is 0.036 and *participation* is 0.345. Therefore, the increasing *social capital* it will also increase the *participation* towards *technical effectiveness of irrigation management*. An increase in *social capital* will increase the *participation* in *technical effectiveness of irrigation management*.

The increased *participation* contributed greatly towards *technical effectiveness of irrigation management* as big as 34, 5%. The result of this study indicates that there is no direct connection between the *social capital* towards *technical effectiveness of irrigation management*. The relationship of *social capital* towards *technical effectiveness of irrigation management* is mediated by the *participation* as an intervening variable. This is in accordance with Putnam (2000) arguments. He stated that *social capital* refers to the primary aspects of social organization such as *trust*, *norms* and *social networks* that allow the implementation of a more coordinated activities and community members can participate and cooperate effectively and efficiently to achieve common goals, and affect productivity individually or in groups.

Partial relations of *Social Capital* through *participation* towards *technical effectiveness of irrigation management* can be seen from the relationship of *social capital* aspects of *trust* towards *participation* which shows that *trust* gives significant effect towards *participation*. This is because *p-value* is $< 0,005$ which is 0,023. Based on the value of *coefficient B* in the table above, it can be seen that the value of *standradized coefficients B* for *social capital* with the aspect of *trust* is 0.209 which means a positive relationship, which with an increase in *social capital* aspects of *trust* will increase participation by 20.9%. The relationship of *social capital* dimension of *social network* also has significant effect towards *participation* with *p-value* $< 0,005$ which is 0,003. Based on the value of the *coefficient B* in the table above, it can be seen that the value of *stand a radized coefficients B* for *social capital* with *social network* aspects is 0.267 which means a positive relationship, which with an increase in social capital *social network* aspects will increase the *participation* by 26.7%.

Based on the results of this study, it can be seen that partial *social capital* which is the aspect of *social networks* can also directly affect the *participation*, but the amount of influence is smaller than the influence of *social capital* aggregate towards *participation*. The aspect of *social norms* has no significant effect towards *participation* in partial with its *p-value* > 0.005 which is 0.151. This indicates that *social norms* does not directly affect *participation* in partial but *social norms* along with the *trust* and *social networks* that establish *social capital* which contribute towards *participation*. Based on the results of this study, it can be seen that the partial *social capital* which is the aspect of *social norms* does not directly affect the *participation*. Based on the results of this study it can be seen that the partial *social capital* aspect which is *trust* can also have a direct effect on *participation*, but the amount of influence is smaller than the influence of *social capital* aggregate on *participation*.

The analysis of direct relationship between *social capital* aspects in aggregate towards *technical effectiveness of irrigation management* shows insignificancy. The analysis of the relation between partial social capital aspect which is *trust* is also insignificantly influence the *technical effectiveness of irrigation management* and *social network* also does not significantly influence the *technical effectiveness of irrigation management*. This is because *p-value* $>$ is 0.005 which is 0,520.

The aspect which is *norm* shows a significant effect on the technical *technical effectiveness of irrigation management* because its *p-value* is < 0.005 which is 0.088. From these results it can be seen that the *norms* can directly affect the *technical effectiveness of irrigation management*. *Norm* is one aspect of *social capital* and a source of cognitive *social capital* that can lead / guide people to take action by joining the irrigation management system. The result is consistent with Ostrom's opinion (1990) which states that the *norms* were awakened in the community led to the join resource management (*common resources*) more efficiently such as irrigation systems and rural land. From the value of *standardized Coefficients B* by 0.158 it can be seen that *social norms* directly affect the *technical effectiveness of irrigation management* with contribution by 15,8 %. The direct effect of the *norm* on the *technical effectiveness of irrigation management* is smaller when compared to the effect of social capital and participation on the *technical effectiveness of irrigation management*.

The aspect of *trust* and *participation* shows a significant influence towards *technical effectiveness of irrigation management* with its *p-value* $< 0,005$ which is 0.000. From the value of *standardized coefficients B* by 0.030 and 0.349 it can be seen how much influence of *trust* through *participation* affects the *technical effectiveness of irrigation management*. *Trust* gives effect of 3% towards *participation* and *participation* giving effect by 34,9% towards *technical effectivity of irrigation management*.

The analysis of *Social networking* aspect through the *participation* towards *technical effectiveness of irrigation management* showed a significant influence on the *effectiveness* towards *technical effectiveness of irrigation management* with its *p-value* is < 0.005 which is 0.000. The same thing also happened in the analysis of *social norms* through *participation* that has a significant effect on the *technical effectiveness of irrigation management* with *p-value* is < 0.005 which is 0.000. For indirect effect of *social norms* through *participation* can be seen from *standardized coefficient B* by 0,113 and 0,340. This indicates that *social capital* and *participation* can give a direct or indirect effect to the *technical effectiveness of irrigation management*. Nasdian (2011) also stated that the level of public participation can influence and be influenced by various things, one of which is *social capital*. The result of this study is in accordance with research conducted by Wicaksono (2016). He stated that *social capital* will be able to provide direct or indirect influence on an implementation of activities through collective action that will grow participation in individuals can also increase one's participation.

CONCLUSION

Social Capital and Participation of *Perkumpulan Petani Pemakai Air (P3A)* members in Nalan Irrigation Area play an important role in water rotation system for the fulfillment of water needs in tertiary irrigation networks in establishing technical effectiveness of irrigation management.

Social capital consists of three basic aspects: *trust*, *social networking*, and *social norms*. The level of trust and social norms are in the high category indicating that members of *P3A* in Nalan Irrigation Area still have a high trustworthiness and uphold the norm in conducting irrigation management activities, while social networks are classified as moderate because the *P3A* group has been long time vacant from institutional activities. The institutional revitalization must be carried out because there are members and group leaders who have passed away.

Social capital and participation can have a direct or indirect effect on the technical effectiveness of irrigation management. Social capital and participation are significantly related to the technical effectiveness of irrigation management. In accordance with the results of hypothesis testing it can be seen that social capital has a significant effect on participation with the value of *standardiezed coefficients B* is 0.269 and participation significantly influence the technical effectiveness of irrigation management with the value of *standardiezed coefficients B* is 0.355.

The relationship of social capital and participation to the technical effectiveness of irrigation management is *partially mediation*, which means that the existence of social capital will increase the participation in establishing the technical effectiveness of irrigation management.

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THE STRUCTURE DESIGN OF CUSTOMARY VILLAGE: A CASE STUDY IN PROBUR VILLAGE, ALOR REGENCY OF INDONESIA

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ABSTRACT

Village can be stipulated as a customary when it has four conditions, i.e. law community unit, shared value, customary governance institutions, and norms of customary law. The customary village structure does not require community organizations such as RW (neighborhood ward, Rukun Warga) and RT (neighborhood block, Rukun Tetangga) because each head of tribe directly controls his people very effectively based on the right of origin and customs. Indigenous peoples have their own custom rules or norms to honor abiding citizens and impose penalties or sanctions against disobedient people. The shared value in various affairs is a form of custom strength.

KEY WORDS

Structure design, customary village, social impact, community.

The Government of Indonesia has issued Law No. 6 of 2014 on Villages which require the Regency Government to re-arrange the status of villages into "Village" or "Customary Village" types. For the determination of customary villages, the present village should be assessed with reference to a number of conditions. A golden opportunity has been given. At the latest one year after the enactment of this Law, the Regional Government of Regency/City shall stipulate a Regional Regulation on the Establishment of Village and Customary Village in its territory. It is possible that the regency/city governments in East Nusa Tenggara will assign the present villages into a "village" and there is no "customary village". Of course, the people of East Nusa Tenggara who still have strong customs and traditional institutions will object it.

Many areas in East Nusa Tenggara still have traditional villages and traditional houses that have been published in foreign countries. This condition should be a preliminary description that there are still many villages with a governance structure based on local customs.

Based on the results of the first year of research (Djaha and Lake, 2015) and a number of previous studies (Djaha, et al, 2004, 2005, 2006, 2007), Probur Village is qualified to be a customary village. Therefore, a preparation to be a customary village is necessary. One of them is the arrangement of customary village structures. The problem is "How are the structure design of the customary village governance and the main task of each element of government?" This study aims to obtain the complete structure of customary village government with their respective duties. Organizing structures relates to authority, duties, functions, rights and obligations, and organizational structures of the customary village. Structure design needs to be done to adjust the main tasks, functions, authority, and rights and obligations with the very complex need demands of villagers.

The results of this study are expected to contribute to theoretical and empirical aspects. Theoretical aspects are related to reinforcement of the postmodernism theories and weakening the modernism theories. Besides, the results of this study are expected to contribute to organizational theory and organizational behavior, especially in organizational culture and organizational structure design. In the empirical aspect, the results of this study contribute to the certainty of the regency government of Alor to stipulate Probur Village as Customary Village.

LITERATURE REVIEW

Customary village is a unit of community that has boundaries with the authority to regulate and manage the affairs of government, interests of the local communities based on the community's initiatives, right of origin, and/or traditional rights recognized and respected in the system of government of the Republic of Indonesia (Article 1 paragraph 1 of Law Number 6 of 2014).

Customs is part of the culture (Koentjaraningrat, 1987: 13). Furthermore, according to Koentjaraningrat (1987: 11-12), customs has four levels i.e. ideas or value systems or values, norms, legal systems, and specific rules. The fourth customs level to the first customs level is the most concrete level to the most abstract level.

Hilman Hadikusuma (2003: 105-106), quoting Ter Haar, states that the law community is a fixed and orderly group of people with own powers/self-government and concrete or intangible wealth. He argues that the customary law community still actually exists with their respective customary laws based on territorial or genealogical bonds, and/or a mixture of genealogical-territorial bonds. The Territorial Law Community is a fixed and orderly society whose members are bound to a certain territory, whether in the worldly connection as a place of life and in spiritual connection as a place of worship to the ancestral spirits. The territorial law community can be distinguished in three kinds: the Village Organization, the Regional Organization, the Village Association. The Genealogical Law Community is the unity of an orderly community in which its members are bound to a common lineage of one ancestor, either directly because of the blood relations or indirectly due to the marital affinity or customs affinity. In the Dutch East Indies era, the genealogical society was divided into three types, i.e.: patrilineal society, matrilineal society, and bilateral/parental society. The Territorial-Genealogical Law Community is the unity of a fixed and orderly society in which its members are not only bound to the particular territory but also attached to the hereditary relationship in the blood relations and/or kinship.

Organizational design deals with the overall organizational structure and plans to change the team's philosophy and orientation. This effort will provide a new structure of duties, authority, and interpersonal relationships that will reliably connect individual and group behaviors in improving work (Gibson, Ivancevich, Donnelly, 1996: 19). The organizational design considers the construction and changes the organizational structure to achieve organizational goals. Constructing and changing an organization is just like building or renovating a house (Robbins, 1994:7).

The structure design of customary village organization aims to accommodate traditional (native) and modern (village) governance in a structure that can ensure the integrative administration of state governance and customary governance and seek to reduce the conflict of indigenous people values and the state value. It is important to acknowledge that ethnic/traditional cultural dialogue with the state has constraints: **First**: the ability and firmness of cultural roots and the system of traditional values in the ethnic environment, **Second**: the nature or characteristic of the state value system that tends to be imperative to a value system assumed to prevent the establishment of a new value system. This condition is the nature or characteristics of imperative or hegemony, reigning not to be negotiable from the state value system. With such condition, can you imagine a dialogue situation with healthy take-and-give spirit between ethnic and state societies? (Umar Kayam in Sajono, 1999:72).

So far, both obstacles mentioned above are based on the community and government perspective, causing the cultural dialogue tends to be a cultural clash. If both survive but one of them is in a weak position, it will encourage the hypocrisy. Hypocrisy could be meant disagreement in the hearts, but agreement in the statements or the application of old habits behind the back. Indeed, the phenomenon of such attitudes and behaviors has been described by Fred W. Riggs (in Pamudji, 1993) in his theory of Sala Model with the characteristic of prismatic society i.e. overlapping society; a society that formally enjoys making rules, but in practice, they return to old habits. Riggs describes it as a transitional society. It seems that this theory is still valid today. The shift in values from patriarchy to

democracy is not as easy as imagined. Formal structures that cannot accommodate leaders based on genealogical values bring up informal leaders in addition to the existing formal leaders. Community loyalty to their informal leaders is not loosened. Consequently, community participation in various government, development, and community activities controlled by formal leaders becomes disrupted.

Therefore, when designing the organization of the Village Government and filling the structure, it is necessary to consider the present cultural values in the community. David Kaplan in his Theory of Culture (2000: 102) suggests the need to pay attention to the concept of cultural ecology. A feature in cultural ecology is the concern about cultural adaptation on two levels: *first*, the cultural system adapts to its total environment, *Second*; the way institutions in a culture adapt. This cultural adaptation process is expected to create a synergism that can ensure the effectiveness of the structure design of customary village governance.

This process is called cultural acculturation. According to Ratna Dwi Lestari Ucrih, (2012) cultural acculturation is a process of cultural and psychological change shaped from intercultural meetings. The effects of cultural acculturation can be seen from the various levels of interacted cultures. At the group level, acculturation usually causes cultural, customs, and social institutions change. Acculturation requires a two-way process to make changes that through adjustment and adaptation by minorities such as indigenous peoples with the dominant majority such as the state.

METHODS OF RESEARCH

This study used a qualitative approach with an intrinsic case study (Stake in Denzin and Lincoln, 2009). This approach directed the researchers to investigate the customs that built the 'native village' governance structure in Probur Village. The data in this research were collected by depth interview, observation, and document. The informants were chosen purposively, i.e. the parties or the families of the parties directly involved in the implementation of 'native' village administration, the parties who have the ability to tell the history of the village like a traditional leader, and the parties that control the current village conditions such as religious leaders, educational leaders, village heads, and head of BPD (Village Consultative Body, *Badan Permusyawaratan Desa*). Data analysis included data categorization, data presentation, data verification, and data interpretation.

RESULTS AND DISCUSSION

A customary village is a unit of community that has clear territory, shared feelings in all their activities, customary governance institutions, and valid customary legal norms recognized by the Government (central, provincial, district/city). Customary governance institutions are manifested in the governance structure. Structure design is a process of designing structures by considering the division of work by function and geographical position, a chain of command, centralization, decentralization, and formalization which can support village governance, development, community development, and community empowerment.

The structure design of the native governance aims to preserve the important values based on the right of origin and to accommodate outside values to complement or replace those that are no longer appropriate to the present conditions. The structure of customary governance is led genealogically by brothers, the elder brother called *Om'elor*, the middle brother called *Kpit'elor*, and the youngest brother called *Ik'elor*. This structure applies at the tribal level, a combination of several tribes, and villages.

In Probur Village, there are three main tribes namely *Bring*, *Aboa*, and *Panea*. Each of these tribes then develops sub-tribes. *Bring* tribe becomes *Bring*, *Duel*, *Madal*, and *Aluaben* sub-tribes. *Aboa* tribe becomes *Kabor* and *Kalon* sub-tribes. *Panea* tribe becomes *Braklel*, *Dohing*, *Molhan*, and *Dulel* sub-tribes. The number of sub-tribes emerging from the main tribes depends on the number of sons born to the rulers of the tribe. It causes the variation

number of sub-tribes below the main tribe. This traditional/native governance structure continues to develop in line with the development of tribes and sub-tribes within the village. The identified traditional governance structure of Probur Village (Djaha, et al., 2004, 2015, 2016) can be seen in Figure 1 below.

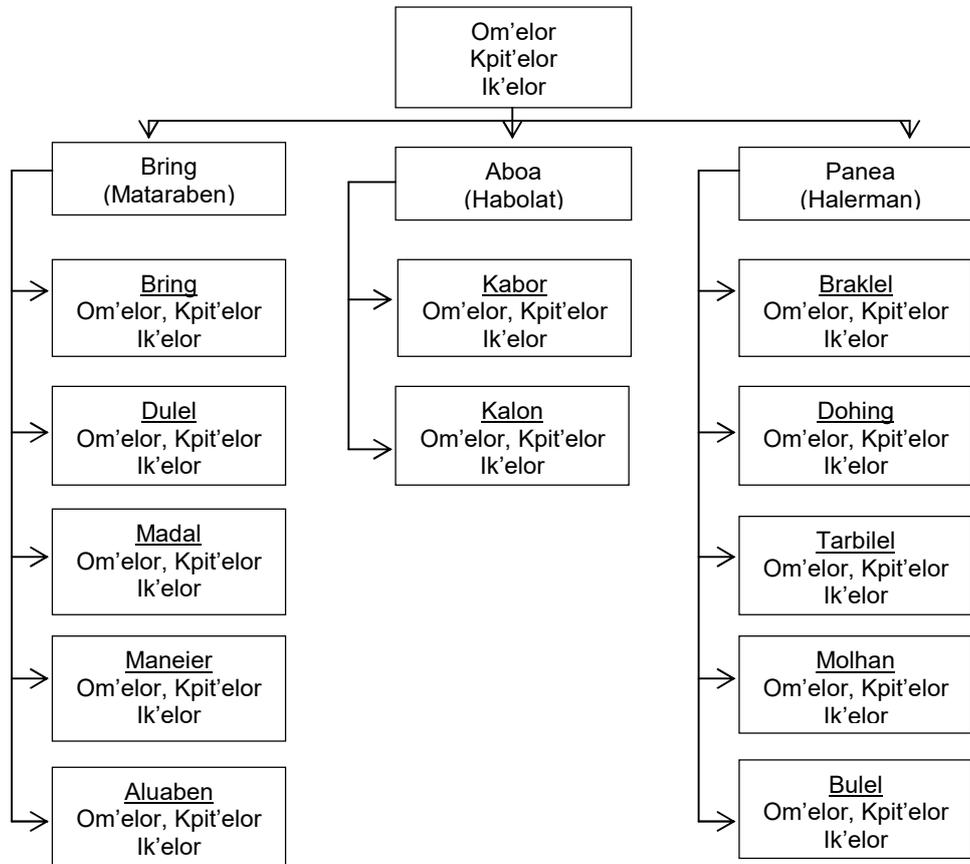


Figure 1 – The Native/Traditional Governance Structure in Probur Village

Table 1 – Duties of Traditional Government in Probur

Government Elements	The duty of each element
<i>Om'elor</i>	Make general rules Implement the government based on the rules Implement judicial duties <i>ik'elor</i> and <i>kpit'elor</i> cannot accomplish Make decisions at the last level Encourage <i>kpit'elor</i> to carry out his duties properly Control the implementation of rules and decisions at the <i>kpit'elor</i> and <i>ik'elor</i> level Give rewards or sanctions to <i>kpit'elor</i> for the success achieved or carelessness made.
<i>Kpit'elor</i>	Establish technical operational rules Implement the government based on the rules made by <i>om'elor</i> and himself Conduct judicial duties <i>ik'elor</i> cannot fulfill Operationalize the decisions and plans made by <i>om'elor</i> Follow up and implement all <i>om'elor</i> decisions Motivate <i>ik'elor</i> to carry out his duties properly Control the implementation of rules and decisions at the <i>ik'elor</i> level Give rewards or sanctions to <i>ik'elor</i> for the success achieved or carelessness made.
<i>Ik'elor</i>	Establish village technical operational rules Implement the government based on the rules made by <i>om'elor</i> , <i>kpit'elor</i> and himself Carry out judicial duties on the problems faced by the community. Guard <i>om'elor</i> Protect the castle Organize and lead the war Follow up and implement all <i>kpit'elor</i> decisions

* The identification results of customs and customary institutions conducted by Djaha, et al. in Probur Village of Alor Regency, 2004, verified in 2015 and 2016.

Both in the main tribes and the sub-tribes, there is the eldest son (*om'elor*), the middle son (*kpit'elor*), and the youngest son (*ik'elor*). Each of the sons in each tribe has his own duties. This unspoken division of duty is fixed in every tribe and has always been a tradition. Each position (*om'elor*, *kpit'elor*, and *ik'elor*) has its own duties.

Table 1 presents the duty description in each of the traditional 'village' government elements.

This basic structure and task are still functional although some tasks are no longer effective today, such as guarding *om'elor* is now more appropriate to accompanying *om'elor*, protecting the castle is more appropriate to protecting the village or known as civil defense (*pertahanan sipil*). Other tasks are considered still appropriate.

The value of the implementation of customary village government in Probur Village is the value of kinship (genealogical) underlying the shared value (solidarity) and compliance/loyal to the high rules. The strength of this value is also the underlying control of wealth in the village such as land, *mamar*¹, and customary forest, so that the wealth has more social than the individual value. The eldest is given the authority to regulate the use of the tribal wealth for the people. All head of the tribes knows their rights and obligations according to the prevailing customs. The head of the tribes has a high sense of belonging, the sense of belonging to his territory and the sense of belonging to his citizens. Thus, the control over the territory and wealth is used as much as possible for the prosperity of the people. This value is a differentiating sense of belonging to regional heads whose have no sense of belonging. Although Probur's people acknowledge that their customs are no longer complete, they still believe that the values still have the benefit such as '*bela*'² (customary oath) and '*karma*'³ (sanction for disobedience to customary oaths).

Bela has made *Bring* tribe, a newcomer tribe, as a tribal leader for *Panea* (a native tribe) tribe and *Aboa* tribe because *Bring* tribe is considered more powerful and capable. Thomas Loban of the *Bring* tribe was appointed the head of the Probur Village (1937), then the captain of Probur Village (1941), head of Probur's new village (1967), village coordinator (1969), and village head of Probur (1972-2007). During the election of the village head directly by the people of all villages in Indonesia, the village head of Probur was unelected but appointed by the Decree of the Regent from time to time until he handed over his position in 2007. Since 2007, the village head of Probur is elected every period, but the chosen candidate is always from the *Bring* tribe.

Every tribe in the Probur Village is hereditary according to the male (genealogical) lineage to date, although the village governance structure has changed since the promulgation of Law No. 5 of 1979. When compared to the current village governance structure, the head of the tribe is similar to the head of the hamlet. The loyalty level of customary community in each tribe to the head of the tribe is still very high when compared with the compliance to the head of the hamlet and the head of RW and RT. Thus, the structure of customary village governance in Probur Village is simple, as shown in Figure 2 below.

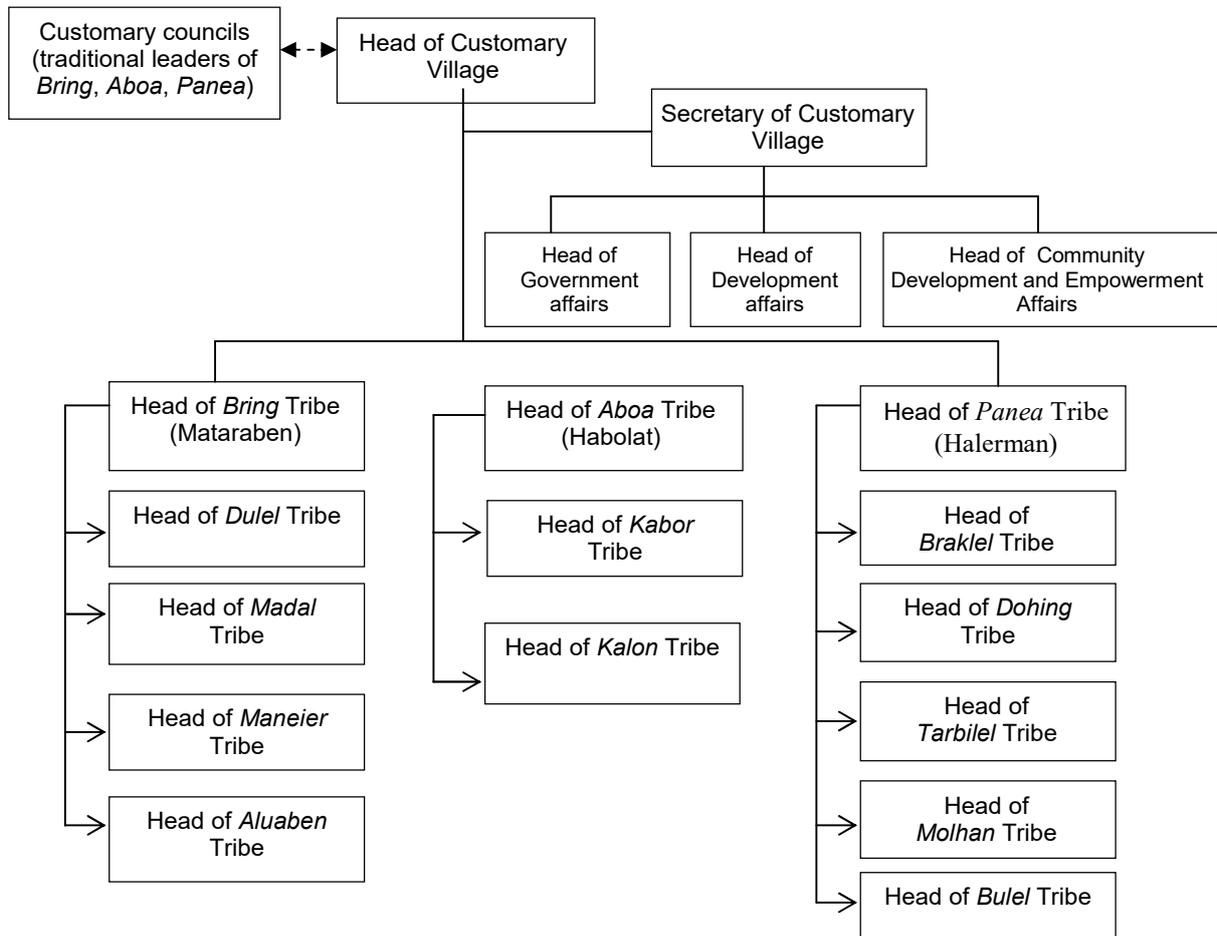
In the customary village of Probur, the village head is not directly elected but through the deliberation of the traditional leaders. Deliberation refers to a number of requirements that become the customs of Probur community. These conditions are (1) Direct descendants of the ruling tribe; (2) Adult males; (3) Be knowledgeable; (4) Be smart; (5) Be close with many people; (6) Have ability/skill (physical and mental); (7) Be polite/well behaved; (8) Have dragon spirit "(assertive and authoritative); (9) Be a wealthy and generous person. If the direct descendant of the ruling is not qualified, then the result of the deliberation can determine the second or third son. If they are still not qualified, they will consider the qualified

¹ Plantation with an area of 1-2 Ha which contains several types of long-life crops such as coconuts, pecans, areca nuts, betel nuts, coffee, bananas, and so on.

² *Bela* procedures for village leaders are those who pledge to drink the blood of each party mixed together with the ground and the fine wood from the handle of the sword used to cut the animals. Deviation from the customary oath results in death.

³ *Karma* initially forms a certain type of disease, usually jaundice, if it is not immediately resolved - apologize to another party who once swore together - and kill the animal -usually a pig. The pig is then cooked and eaten together. When the ceremony is done correctly and on the basis of consciousness/sincerity, the person with the disease heals immediately or heals in a short time (several days: mostly three days).

husband of the sister or a qualified male from another tribe. If the result of deliberation falls on the men outside the ruling tribe, the customary ceremony will be held to inaugurate the new village head as a part of the ruling tribe before the new rein of leadership is given.



Bring, Aboa and Panea are the main tribes from which sub-tribes develop. The sub-tribe is the next generation calculated from the male lineage. Duel, Madal, Maneier, and Aluaben tribes are the sub-tribes of the main tribe of Bring. Kabor and Kalon are the sub-tribes of the main tribe of Aboa. Braklel, Dohing, Tarbilel, Molhan, and Bulel tribes are the sub-tribes of the main tribe of Panea. These sub-tribes are always evolving according to the growth of the sons within each tribe. Customary councils are traditional leaders from each of the main tribes and sub-tribes who conduct deliberation in appointing the head of the customary village, the rules of customary village, and as the judges in the customary court. The secretary and the heads of affairs in the customary village are staff members of the modern village government accommodated into the customary village governance structures to implement village governance, development, community development, and community empowerment in line with current government demands. Heads of tribes are the executing element that organizes the community based on the right of origin and local customs to implement village governance, development, community development, and community empowerment.

Figure 2 – The Structure Design of Customary Village Governance in Probur Village

The head of the tribe in each of the main tribes are the eldest sons of a direct descendant of the tribe. If he is not qualified enough, he remains the head of the tribe, but an assistant who performs daily tasks will be appointed. The assistant comes from the related tribe. This blood relationship keeps tribal people living in their own village or other villages will always be involved in their tribe affairs.

CONCLUSION AND SUGGESTIONS

The structure design of customary village is a process of reconstructing village structures into customary village structures. The structure design result of the customary village consists of the heads of customary village, the heads of main tribes, and the heads of sub-tribes. The village head is appointed through the deliberation results of the traditional

leaders. The heads of main tribes are determined by the lineage of the eldest son in the tribe, both in the main tribe and the sub-tribes. Customary villagers are organized according to genealogical, not territorial, factors. Staff elements – the village secretary, the head of government affairs, the head of development affairs, the head of community development and empowerment affairs- are appointed by the head of the customary village.

The head of customary village is the result of the traditional council deliberation and is appointed through the traditional ceremony. The village head is not directly elected by the community. The heads of main tribes replace the heads of hamlets in the village governance structure and the heads of sub-tribes replace the heads of the RTs, without the heads of RWs. The heads of main tribes and the heads of sub-tribes rule the community based on the right of origin and the traditional rights in the implementation of village governance, development, community development, and community empowerment.

The village head is still assisted by staff elements, i.e. the village secretary, the head of government affairs, the head of development affairs, and the head of community development and empowerment affairs. This staffing element is adapted from the modern village government structure to organize the management of customary village governance. This combination is assumed to accommodate the elements of modern government and traditional government.

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THE INFLUENCE OF VARIETY ADAPTATION AND STAKE INCLINATION ANGLE ON THE GROWTH, RESULT AND CONVERSION EFFICIENCY OF SWEET POTATO (*IPOMOEA BATATAS L.*) IN BALIEM VALLEY, PAPUA HIGHLAND

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ABSTRACT

Sweet potato (*Ipomoea batatas L.*) is a plant that needs full sun to grow and get optimum yield. It needs an engineering technology that is able to integrate plant and environment in order to overcome abiotic factors in Papua highland. This research aims to determine the growth, result and energy conversion efficiency contained in the sweet potato by combining variety and different stake inclination angle. This research was conducted in Baliem valley of Jayawijaya district. The experimental design used was factorial group random design with three replications. The research result shows that to make plant more efficient in managing solar intensity in Papua highland, so it is advised to plant Cangkuang variety (broad leaf) and to use stake with inclination angle of 60° and 90°.

KEY WORDS

Sweet potato, variety, stake inclination, Papua highland, conversion efficiency.

Papua and West Java are two regions with the largest sweet potato harvested area in Indonesia, while for the side of production level. West Java's sweet potato production is higher than Papua. Rauf and Lestari (2009) reported that the variety of Papua Sollosa, Papua Pattipy and Sawentar in Papua highland are harvested at 6 months old with the production of 24-25 t ha⁻¹. Furthermore, Saraswati *et al.* (2013) reported that Papua Pattipy, Papua Sollosa and Cangkuang planted in Baliem valley at 6 months old resulted in 20.78, 14.68 and 13.28 t ha⁻¹ respectively. In west java, the varieties planted are SQ-27, Ceret, Cilembu and Prambanan with 4-5 months old, their production is 25-30 t ha⁻¹. This result indicates that the production of sweet potato in Papua is still low, let alone the production potential is 30 t ha⁻¹ on average. Agatha and Takeda's research result (1982) in Japan can reach 40 t ha⁻¹ with solar radiation 339 cal cm² day⁻¹ and the average temperature is 24.2°C.

Most of sweet potato farmer in Papua stay in agroecosystem area of highland (Limbongan and Soplanit, 2007). Abiotic factor as higher level clouds is a limiting factor of the low harvested result of sweet potato in Papua highland. Farmer at Baliem valley has a hereditary local wisdom to addapt sweet potato cultivation by growing long spiral-shaped cultivar in the middle of allotment land and crept up vertically using stake as well as short spiral-shaped cultivar is grown as egde plants (Wydiastuti, 1994). All of those efforts are intended to position leaf so that able to receive low solar intensity so that the harvested result of sweet potato is higher. Soenarto (1997); Saraswati *et al.*, 2013 report that the intencity of solar radiation in Baliem valley is relatively slow and only about 1.38 KJ cm² day⁻¹ and the average of sunshine duration is 3.98 hours day⁻¹. In reality, sweet potato needs at leas 10 - 11 hours of sunshine to achieve maximum photosynthesis rate (Ravi, 2003; Ravi and Saravanan, 2012).

There have been so many studies on sweet potato at Baliem valley like the one conducted by Widyastuti, 1994; Soenarto, 1997 and Saraswati *et al.*, 2013. However, almost all those studies only focus on the socio-culture aspect of the *dani* people in managing sweet

potato and studying agronomical aspect. While the study on the respond of plant to the abiotic factors as the result of higher level clouds is not conducted yet. For that matter, in order to make sweet potato more efficient in managing low solar radiation in Baliem valley, it is made an engineering technology by choosing variety having proper morphology as well as positioning leaf so that the angle is more vertical to receive sunshine. Therefore, it is expected the photosynthesis rate is more enhanced and the harvested result in form of carbohydrate is also storage more. According to Wargiono (1980), most of broad-leaved sweet potato is able to conduct photosynthesis effectively; the result is higher than the variety of narrow leaf or fingered leaf. Maryasa (1990) concludes that stake usage makes plant able to catch light efficiently and decrease the effect of shading each other so that the light can be distributed proportionally to all parts of leaf.

This research aims to test the respond of variety and morphology of narrow leaf, medium leaf and broad leaf as well as different stake inclination angle that can increase plant ability to take advantage of solar radiation efficiently. As an assessment of how big the availability of plant efficiency to manage solar radiation intensity in Papua highland can be measured from the harvested result, dry matter production and energy conversion efficiency during the growth period of sweet potato.

MATERIALS AND METHOD OF RESEARCH

A field study was conducted at Wesakin village, Wouma subdistrict, Jayawijaya district, Papua, Indonesia, (138°57' East longitude, 04° 04' south longitude, 1560 m above sea level) during the planting season in April until September 2016. On dry land with soil type of entisol, soil texture is sandy loam and the pH is 5.2. This research uses three varieties of sweet potato: Siate (local), Papua Sollosa (improved variety) and Cangkuang (improved variety).

An experiment to use factorial group random design is conducted in three replications. Variety of factor A is made up of three types: Siate (V1) represents narrow leaf, Papua Sollosa (V2) represents medium leaf and Cangkuang (V3) represents broad leaf. Four different stake inclination angles as factor B are made up of using no stake (A0), stake angle 45° (A1), stake angle 60° (A2), and stake angle 90° (A3). Soil was managed using a special scoope; the land was divided into three groups and each of then was divided again into 5.25 x 6.50 m plot. The distance between the groups is 100 cm and the distance between the plot is 50 cm, while the planting distance is 75 x 50 cm, every one cutting is planted in a whole of single mound. Hand weeding was conducted at the 15, 45, and 80 day after planting (DAP). Fertilizer application and pest control chemically are not conducted since there is chemical prohibition of usage for agriculture by the local government. Observation was conducted destructively by taking sample of two plants that were not the edge plant at 40, 70, 100, and 130 days or the observed parameter at every observation. Sample taking was conducted by harvesting sweet potato using stake or local people call it *sege*. Interception of solar radiation was measured above and under canopy at 11 a.m when the wheather is bright using LX 1330 B meter lux. A set of measurement was conducted 3 times above the cannopy and 3 times on the surface soil. The data of global solar radiation was gained from Wamena meteorology station class 3.

Table 1 – Climate condition in Baliem Valley, Wamena

Observation Period	Average air temperature (°C)	Average soil temperature (°C)	Average solar radiation (Cal.cm ⁻² hari ⁻¹)*	Average rainfall (mm)*
2 April - 12 May	21.00	25.00	113.28	131
13 May - 13 June	20.00	23.00	99.31	98
14 June - 14 July	19.00	23.00	117.02	97
15 July - 15 August	19.00	23.50	107.43	67
Average	19.75	23.63	109.26	98.25

Source: * = Wamena meteorology station class III

Observation variables include total leaf, plant dry weight, harvested result and energy conversion efficiency. Total leaf was counted of all leaf been opened perfectly on a two plant sample. Total sweet potato was counted entirely at every plot and divided by total plant during harvesting season. While the energy conversion efficiency uses a method developed by Yoshida (1981). Part of plant was separated into root, stem, leaf and tuber, and then dried in an oven until reach the weight constant with temperature of 80°. Plant dry weight was counted by adding all parts of plant that has been dried in an oven. Photosynthesis efficiency was measured based on the total dry weight ($\text{g}\cdot\text{m}^{-2}$) divided by solar radiation accumulative ($\text{cal}^2\text{days}^{-1}$) after harvesting.

Statistics analysis was conducted using Analisis Varians (ANOVA) at 5% significance level. The difference between treatment that was tested using Duncan Multiple Range Test (DMRT) 5%. Analysis data was conducted using Genstat 17 statistic program and Microsoft Office Excel program 2010.

RESULTS OF STUDY

Leaf number. Sweet potato plant was conducted after the end of *el nino* long dry season in 2015 at middle montana area, Papua. The average time of 8.25 hours sunshine is 66 - 69%, solar radiation intensity of 150 DAP is $20,661.90 \text{ cal cm}^{-2} \text{ day}^{-1}$ (unpublishe data). The development of total sweet potato leaf planted after the end of long dry season indicates the first real difference of growth until 130 DAP. Total leaf increases at all treatment conditions following plant development and reaches the highest number at V1A0 treatment condition at 100 DAP, it tends to decrease at 130 DAP until approaching harvesting season. The lowest leaf number is gained at a combination of V1A3 treatment. the high number of leaf during the V1A0 treatment combination is influenced by Siate characteristic having longer sucker than other varieties and approaching ground so that getting nutrient to maintain the leaf longer. In opposite way, V1A3 treatment experiences a decrease since the appearance of new surculus is not balances with the number of dried leaf. The relationship between variety treatment combination and stake inclination angle to the leaf number parameter are demonstrated in (Figure 1).

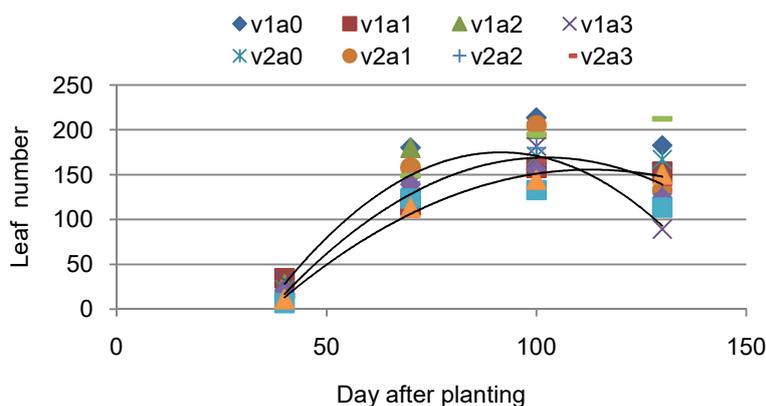


Figure 1 – The relationship between variety combination and stake inclination angle with leaf number of sweet potato of local Siate variety (a), Papua Sollosa (b) and Cangkuang (c). Polynomial model for Siate, Papua Sollosa and Cangkuang variety is $V1y = -0.0553x^2 + 10.127x - 288.43$, $R^2 = 0.9793$; $V2y = -0.0393x^2 + 8.0302x - 241.55$, $R^2 = 0.998$ dan $V3y = -0.0267x^2 + 6.0344x - 185.4$, $R^2 = 0.9918$ respectively.

Plant dry weight. The influence of variety treatment combination and stake inclination angle on the total dry weight indicates significant difference at all phases of growth excluding vegetative phase at 40 DAP. The highest dry weight is gained from V3A3 treatment combination at 130 DAP ($326.9 \text{ g plant}^{-1}$) (Figure 2). Cangkuang leaf morphology that is relatively broad with vertical inclination angle truly influences the ability of leaf to catch solar

radiation. The higher the solar radiation catch, the higher the photosynthesis rate so that the assimilate resulted in form of dry matter is high. This result can explain that the intensity of solar radiation is a more dominant factor in increasing biomass production to actuate metabolism activity and plant genetical characteristic. Gifford *et al.* (1984); Adeboye *et al.* (2016) states that in a field condition, plant development depends on the canopy capacity to intercept radiation incident and change it into new biomass. Total radiation incident intercepted depends on the index of leaf area and canopy orientation. Leaf area index is influenced by leaf number and leaf area covering canopy. Furthermore, Plenet *et al.* (2000) concludes that Photosynthetically Active Radiation (PAR) absorbed by canopy depends on the LAI and plants leaf structure.

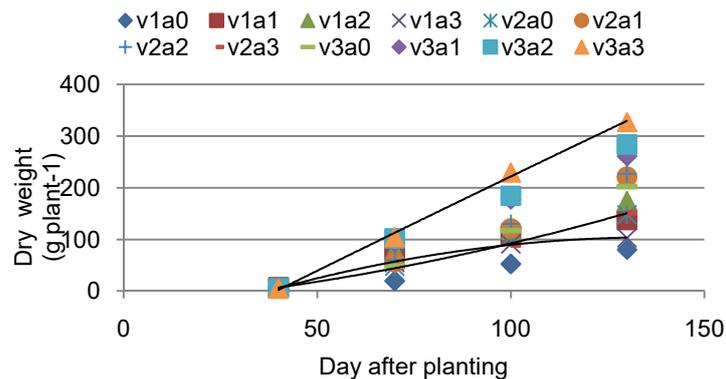


Figure 2 – The relationship between variety combination and stake inclination angle to the total dry weight of sweet potato. Polynomial model for Siate variety (a), Papua Sollosa (b) and Cangkuang (c) respectively is $y = -0.0104x^2 + 286.14x - 92.246$, $R^2 = 0.9989$; $y = -0.0059x^2 + 0.5938x - 26.281$, $R^2 = 0.9984$ dan $y = 0.0008x^2 + 37.661x + 147.08$, $R^2 = 0.9978$

Tuber yield. Variance analysis result of the number of tuber and marketable tuber proportion during harvest of 150 DAP is presented in (Table 2). Variety treatment combination and stake inclination angle is not significantly different to the number of tuber. Type of sweet potato variety has a significant influence ($p < 0.05$) on the tuber number per plant. On average, the highest tuber number gained from Cangkuang variety is 3.68 and the lowest is gained by Papua Sollosa and local variety by 3.08 and 2.72 tubers respectively. Stake inclination angle has a significant influence ($p < 0.05$) on the tuber number per plant. It is obvious that the variety with broader leaf and stake uses is able to increase tuber number per plant. The highest tuber number is gained from stake inclination angle 45° and 60° by 3.70 and 3.28 respectively, but not significantly different with stake angle 90° (3.11) (Table 2).

Table 2 – The average influence of variety combination and stake inclination angle on the tuber number/plant and marketable tuber (%)

Treatment	Average number of tuber and marketable tuber	
	Number of tuber/plant	Marketable tuber (%)
Variety	-	-
V1 (Siate)	2.73 a	42.78 a
V2 (Papua Sollosa)	3.08 a	39.50 a
V3 (Cangkuang)	3.68 b	52.25 b
Stake angle	-	-
A0 (without using stake)	2.57 a	36.52 a
A1 (Stake angle 45°)	3.70 b	50.09 b
A2 (Stake angle 60°)	3.28 b	51.08 b
A3 (Stake angle 90°)	3.11 ab	41.68 ab

Note: The number followed by different letter in the same column indicates significant difference at Duncan test ($p = 0.05$).

Sweet potato variety has a significant influence ($p < 0.05$) on the marketable tuber proportion, it is obvious that the highest total marketable tuber is Canguang variety by 52.25% higher than Papua Sollosa and local Siate variety by 42.78% and 39.50% respectively. The influence of stake angle is significantly different ($p < 0.05$) to the total marketable tuber, the highest total marketable tuber is at the stake angle 60° and 45° by 51.08% and 50.09% but not significantly difference with stake angle 90° (41.68%). This result can explain that the use of variety with broad leaf and stake use is able to increase marketable tuber proportion. The relationship between tuber number and marketable tuber proportion is demonstrated in (Figure 3a).

Variance analysis yield to the sweet potato yield of 150 DAP is presented in Figure 3b. Combination of variety treatment and stake inclination angle to the parameter result of sweet potato indicates significance different ($p < 0.05$) and ranges between $12.60 - 31.53 \text{ t ha}^{-1}$. The highest result of tuber is gained from the combination of V3A3 and V3A2 by 31.53 t ha^{-1} and 28.86 t ha^{-1} respectively. The increase treatment of stake inclination angle of those three varieties can increase sweet potato result, excluding V1A3 and V2A3 treatment, tends to decrease result. The lowest result of sweet potato is gained from the combination of V1A0, V1A3 and V2A0, V2A3 treatment.

The number of tuber, marketable tuber proportion, tuber yield is a parameter that can represent the result (Table 2 and Figure 3b). Low sunshine condition in Baliem valley, Papua highland enables Canguang variety to have more efficient leaf morphology in getting solar radiation, as indicates by the higher tuber number of sweet potato and marketable tuber proportion compared to other varieties. An efficiency of catching solar radiation is also influenced by stake inclination angle treatment since the leaf position is more vertical to the solar system direction. This also influences tuber number per plant and marketable tuber proportion is higher than the treatment without using stake. This matter is inline with Maryasa (1990) opinion that stake use makes plant able to catch sunlight more efficiently. Moreover, Oswald and Midmore (1995) states that sweet potato shaded will curate an initiation of tuber structuring, number of tuber and size tuber.

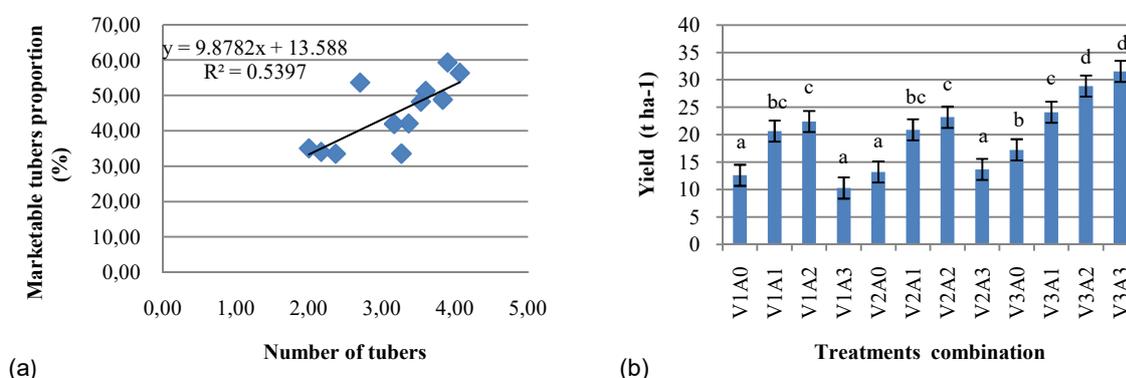


Figure 3 – The relationship between number of tuber per plant and marketable tuber proportion. The linear model is $y = 9.8782x + 13.588$, $R^2 = 0.5397$, $r = 0.7346$

It appears that the combination of sweet potato varieties especially broad-leaved varieties with increasingly higher stake inclination angle makes the location of the leaves more vertical, in low conditions, sunshine enables most leaf sheets to capture light for photosynthesis. While the combination treatment of varieties without using stake causes only the upper leaf sheet that receives light while the leaves on the bottom layer lacks light because it shades and affects the low net photosynthesis results. The low yield of sweet potato on the combination of V1A3 and V3A3 treatments is due to the fact that some leaves of the photosynthesis agent dried up.

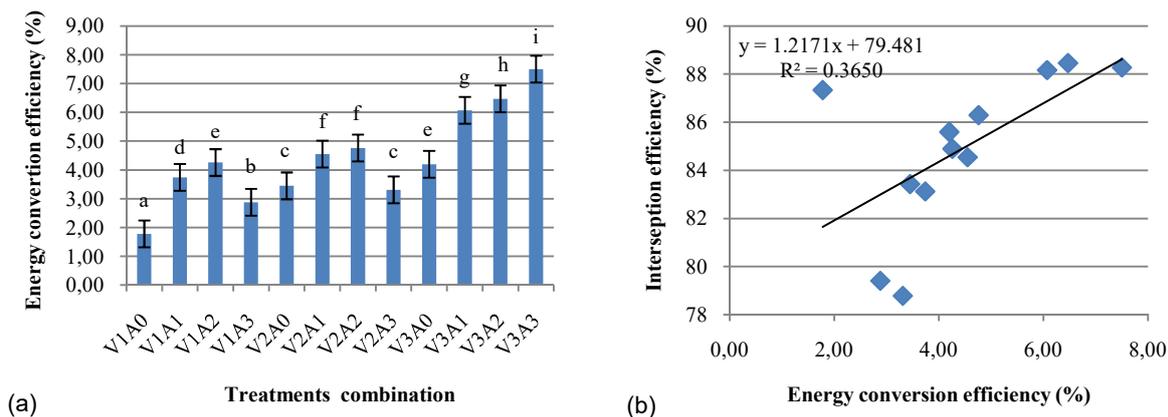


Figure 4 – The relationship between the interception efficiency (E_i) and the energy conversion efficiency (E_c) of sweet potatoes in the combination of variety treatment and the stake inclination angle, the line in the figure is an estimation of linear model $y = 1.2171x - 79.481$, $R^2 = 0.3650$, correlation coefficient value, $r = 0.6041$

Interception efficiency (E_i) and Energy conversion efficiency (E_c). Varieties treatment was significantly different ($p < 0.05$) on the interception radiation efficiency (E_i). Variance result analysis of efficiency parameter of solar radiation shows that Cangkuang variety produces the highest E_i compared to Papua Sollosa and local Siate varieties, which is 87.62%, 83.68% and 83.26% respectively (Figure 4b). When viewed from the aspect of efficiency interception, it shows that Cangkuang variety having broad-leaved morphology more efficient in catching incoming PAR radiation compared to Papua Sollosa and Siate whose leaf is medium and narrow. The combination of variety treatment and the angle of inclination was not significantly different from the interception efficiency parameter.

The sweet potato grown in Papua highland with solar intensity for 150 days of $20,661.90 \text{ cal cm}^{-2} \text{ day}^{-1}$ produces energy conversion efficiency (E_c) of 1.78 - 7.50%. The highest E_c values were obtained in a combination of V3A3 treatment by 7.50%, while the lowest E_c was obtained in a combination of V1A0 treatment by 1.78% (Figure 4a). The amount of E_c is influenced by the high production of dry matter to PAR which falls on the canopy. The result of energy conversion efficiency is high because conversion efficiency for root crop, according to Rana and Rana (2014) is 1.6 - 1.9 %. The relationship between interception efficiency and energy conversion efficiency is shown in (Figure 4b).

Based on the estimation of sun position from hour angle to the stake inclination angle, it indicates that the perpendicular position of the sunlight for stake angle 90° falls at 12 a.m, the perpendicular position of the sunlight for stake angle 60° falls at 10 a.m and the perpendicular position of sunlight for stake angle 45° falls at 9 a.m (data not shown). The average sun exposure in Baliem valley starts at 10 a.m, before that the sunlight is still covered with clouds and fog. This data explain that the sweet potato gets full sun angle at 10 a.m to 12 a.m, and it occurs at the 90° and 60° stake angles. Fujise and Tsuno (1962) states that the rate of photosynthesis of sweet potato shows a cycle with a specific pattern during normal sunshine periods, that is high radiance in the morning until afternoon and then getting low again. Moreover, it is said that in the subtropical zone, net photosynthetic rate is about $12 \text{ mg CO}_2 \text{ dm}^{-2} \text{ hour}^{-1}$ between at 9 a.m - 1 p.m, then decrease until hingga $2 \text{ mg CO}_2 \text{ dm}^{-2} \text{ hour}^{-1}$ at 5 p.m.

Thus, it can be concluded that the interception and the use of solar radiation is influenced by genetic factors and plant environment and both of them interact with each other. In addition to the leaf morphological characteristic that affects plant physiological response, inclination angle position of leaf toward the arrival of sunlight becomes the determinant factor of the number of energy conversion efficiency of sweet potato. Goudriaan (2016) states that the distribution of leaf angle plays an important role in determining the interception of light. In the absence of water and nutrient shortages, the efficiency of solar radiation is determined by light interception, especially PAR by canopy and patterns of light

distribution in plant canopy (Monteith, 1977; Sitaniapessy, 1985; Russell et al., 1989; Tesfaye et al. 2006).

CONCLUSION

Dry matter production increase is influenced by leaf number increase influencing the broad of leaf area. Leaf morphology and the inclination angle interact each other in increasing plant dry matter, tuber yield and energy conversion efficiency of sweet potato. Morphological form of leaf characterized by broad leaf truly influences the high efficiency of radiation interception causing number of tuber and marketable tuber proportion enhancement. Separately, stake inclination angle influences the high number of tuber per plant and marketable tuber proportion. Due to the low condition of solar radiation intensity in Papua highland, variety with broader leaf together with more vertical stake inclination angle interact each other to influence the high value of energy conversion efficiency of solar system. The combination of Cangkuang variety treatment and stake angle 90° results in highest EC by (7.50%) compared to the combination of Siate variety treatment without using stake (1.78%).

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CONCENTRATION OF LIQUID PES MEDIA ON THE GROWTH AND PHOTOSYNTHETIC PIGMENTS OF SEaweEDS COTONII PROPAGULE (*KAPPAPHYCUS ALVAREZII* DOTY) THROUGH TISSUE CULTURE

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ABSTRACT

In vitro tissue culture of *Kappaphycus alvarezii*, the required nutrients are derived from the culture medium. The use of liquid PES medium as a culture medium has been widely applied to increase the growth rate of seaweeds. Seaweeds growth is also associated with photosynthetic pigments. If the absorption of light by chlorophyll a is sufficient, the process of photosynthesis will take place optimally, so that the growth of seaweed can increase. This study aims to examine the effect of liquid PES medium on the growth and photosynthetic pigments of *Kappaphycus alvarezii* propagule. The treatments used included 10 ml and 20 ml liquid PES media. Parameters measured include weight gain, daily growth rate, photosynthetic pigment contents (chlorophyll a and phycoerythrin) and absorption of nitrate (N) and phosphorus (P). The results showed that the use of 10 ml liquid PES medium gave better results than the use of 20 ml liquid PES medium on all parameters measured.

KEY WORDS

Growth, photosynthetic pigments, *K. alvarezii*, tissue culture.

Every living creature, including small creature seaweed, requires both macro element and microelement nutrients to live and grow. In the real habitat, seaweed obtains nutrients from sea water containing various chemical components. In addition, seaweed also gains the nutrients from organic materials flown by the ocean. In order to survive in vitro cultures, cultivation media that serves as a provider of nutrients of the seaweed should contain the nutrients needed by the seaweed. In various types of algae, liquid PES media have been widely reported to be excellent for callus morphogenesis (Reddy et al., 2003; Munoz et al., 2006; Kumar et al., 2007; Baweja et al., 2009 & Yong et al. 2011).

Studies on seaweed in vitro tissue culture, particularly on *Eucheuma cottonii* or *K. alvarezii* species in recent decades have provided new discoveries in seaweed cultivation, such as the discovery of improved varieties as seeds and better carrageenan production (Hayashi et al. 2008; Reddy et al. 2008, Hurtado et al 2014, Yong et al 2014, & Yong et al 2015). Meanwhile, some studies on metabolite and biological activities of macro algae also show that in addition to having polysaccharide content such as carrageenan and bioactive compounds, seaweed also contains other compounds namely pigments (Liu et al., 2005; Andersson et al., 2006; Schubert et al ., 2006; & Indriatmoko et al., 2015).

Several studies on photosynthetic pigments in red seaweed have been conducted (Yocum & Blinks, 1957; Saenger, 1969; Giuseppe & Felicini, 1973; Mary & Dawes 1981; Luning & Schmitz, 1988; David & Rowan, 1989; Ojala; 1993; Dagmar & Mathew; 1998; Reeta & Kulandaivelu; 2000; Aguilera et al., 2002; Gudrun and Wincke; 2005; Naguit & Tisera; 2009; Sarojini & Narayanan, 2009; Schmidt et al., 2010; Vanitha & Chandra, 2012). However, most of the results of these studies only provide information about photosynthetic pigments with the limitation only to the cultivated red seaweed (*in vivo*), and no information about photosynthetic pigment in seaweed tissue culture (*in vitro*). Therefore, this research is intended to examine the extent to which liquid PES media as a tissue culture medium can give effect to the growth and content of photosynthetic pigments consisting of chlorophyll a and *phycoerythrin* on *K. alvarezii* propagule resulted from the tissue culture.

MATERIALS AND METHODS OF RESEARCH

The materials used in this research are *K. alvarezii* callus in the form of micropropagules obtained from SEAMEO-BIOTROP in Bogor. Fertilizer used as a treatment is PES fertilizer obtained from the Tissue Culture Laboratory of Marine Aquaculture Hall Lombok.

Callus Acclimatization. Micropropagules obtained from SEAMEO-BIOTROP were firstly placed on the rotary shaker to be shaken for one week to adapt the culture. Rotary shaker was placed in the culture room with the room temperature between 22-25 °C, given the irradiation of TL lamp with the light intensity was \pm 1500 lux, the duration of irradiation was set 12 hours on and 12 hours off.

In Vitro Culture. After the acclimatization of micropropagules placed on the rotary shaker, it was sub-cultured to a 1L bottle containing liquid PES media with two treatments of 10 ml and 20 ml of PES in 500 mL of sterile seawater. The culture was aerated by aerator. After one week, the media was replaced with new media. The culture bottles were stored in the culture room with room temperature between 22-25 °C, light intensity of \pm 1500 lux with the irradiation time of 12 hours on and 12 hours off. After six weeks, the volume of the PES media was added to 20 ml of PES in 1 liter and 40 ml of PES in 1 liter of sterile sea water. The cultivation of the micropropagules was performed for eight weeks (about 2 months).

Measurement of Propagule Growth. The measurements of propagule growth includes weight gain and daily growth rate which were measured every two weeks for two months of cultivation, using the formula proposed by Dawes et al. (1994). The weight gain was calculated based on the formula:

$$\Delta W = W_t - W_o$$

Where: W_t = total weight of propagule at time of t (gram); W_o = total initial weight of propagule (gram).

The daily growth rate was calculated based on the following formula:

$$\alpha = \frac{\ln W_t - \ln W_o}{t} \times 100\%$$

Where: W_t = final weight (gram); W_o = initial weight (gram); t = observation duration (days).

Measurement of Photosynthetic Pigments (Chlorophyll a and Phycoerythrin). The measurement of photosynthetic pigment includes the content of chlorophyll a and *phycoerythrin*. The measurements were taken every four weeks for eight weeks of cultivation. The samples of the seaweed were smoothed using a blender then weighed 2 gram and crushed using mortar. Samples were added with 10 ml 100% acetone (for chlorophyll) and 10 ml 0.1M phosphate buffer (for *phycoerythrin*). The samples were inserted in a test tube to be centrifuged and filtered. The centrifuged samples were measured on their absorbance by using a spectrophotometer at wavelengths of 664 nm and 647 nm for chlorophyll a and 592, 564 and 455 nm for *phycoerythrin*. Chlorophyll concentration was calculated based on the Serman's equation (1988) while the concentration of *phycoerythrin* was calculated based on the Beer and Eshel equation (1985) as follows:

$$\begin{aligned} \text{a) Chlorophyll a} &= 11.93 (A_{664}) - 1.93 (A_{647}) \\ \text{b) Phycoerythrin (mg/L)} &= [(A_{564} - A_{592}) - (A_{455} - A_{592}) 0.20] * 0.12 \end{aligned}$$

Furthermore, the concentration of pigment per gram of seaweed was calculated based on Naguit and Tisera equation (2009) as follow:

$$\frac{\text{concentration (mg}\cdot\text{L)} \times \text{solvent volume (ml)}}{\text{talus weight (gr)}} \times \frac{1000 \mu\text{g}}{\text{mg}}$$

Absorption of N and P on the Seaweed. Absorption of nitrogen and phosphorus by seaweed can be seen from the results of measurement of water quality and proximate analysis. Here are the formula to calculate the nitrogen and phosphorus absorbed by measuring the water quality proposed by Zhou et. al (2006):

$$N \text{ uptake (mg/g)} = \frac{| [N]_t - [N]_0 | \times 1 \text{ kg}}{W (g)}$$

$$P \text{ uptake (mg/g)} = \frac{| [P]_t - [P]_0 | \times 1 \text{ kg}}{W (g)}$$

The absorption of nitrogen and phosphorus by the seaweed talus based on the results of proximate analysis with Kjeldahl method was calculated based on the equation of Zhou et. al (2006):

$$N \text{ uptake } (\mu\text{mol/g/day}) = \frac{\text{daily growth rate (\%/day)} \times N \text{ tissue (g/100g)}}{100}$$

$$P \text{ uptake } (\mu\text{mol/g/day}) = \frac{\text{daily growth rate (\%/day)} \times P \text{ tissue (g/100g)}}{100}$$

Chemical and Physical Measurement of Water Quality. The measurements of the water quality were conducted every four weeks for eight weeks of the cultivation. The measurements were carried out physically which included some aspects, e.g. salinity, pH, DO and temperature.

Data Analysis. The data related to the growth and photosynthetic pigment were analyzed by ANOVA variance analysis, while the N and P absorption data and water quality were integrated as the supporting data analyzed by using the mean and graph. Data processing through the graph was done with Microsoft Excel program

RESULTS OF STUDY

Micropropagule Growth. The observed weight gain of propagules during the 8 week cultivation increased along with longer duration for all treatments (Figure 1).

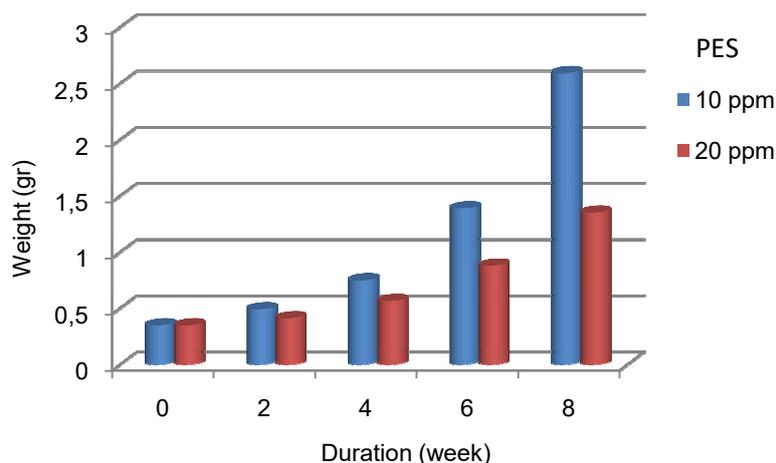


Figure 1 – The weight gain of *K. alvarezii* propagule in 8 weeks of cultivation

The treatment of 10 ml liquid PES medium in 500 ml of sterile seawater gave a better average on weight gain compared to the 20 ml liquid PES medium treatment in the same 500 mL of sterile seawater. The highest average weight gain was obtained at 10 ml liquid

PES medium treatment, which was 2.24 gram, while the lowest average weight gain was in the 20 ml liquid PES medium treatment, amounted to 1.00 gram (see Table 1).

Table 1 – The average weight gain of *K. alvarezii* propagule in various concentrations of liquid PES media

Liquid PES (ml)	Initial weight (gram)	Final weight (gram)	Absolute weight (gram)
10	0.35 ± 0.02	2.59 ± 0.072	2.24 ± 0.073
20	0.35 ± 0.01	1.35 ± 0.042	1.00 ± 0.035

This is also in line with the daily growth rate of propagules, in which the range of daily growth rate in the 10 ml liquid PES medium treatment results in a higher yield of 2.42 - 4.46% per day compared with the 20 ml liquid PES medium treatment at the range of daily growth rate is 1.18 - 3.072% per day (see Figure 2).

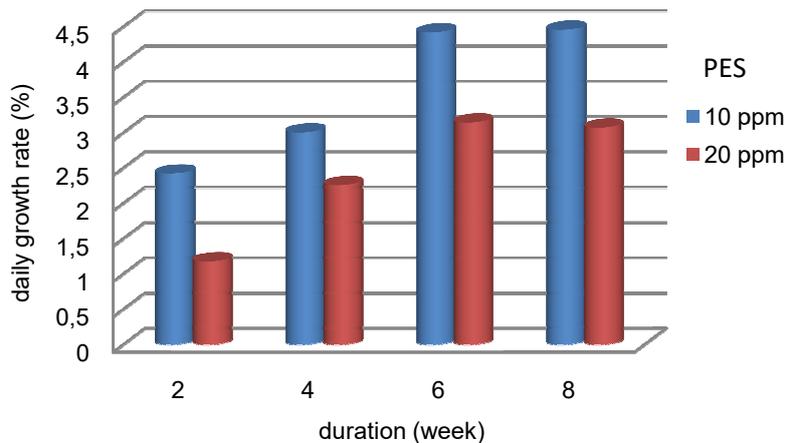


Figure 2 – Daily growth rate of *K. alvarezii* propagule in eight weeks of cultivation

The results of the variance analysis showed that the different concentration of the liquid PES media contribute very real effect (F statistic > F table) to the daily growth rate of seaweed *K. alvarezii* propagule.

Photosynthetic Pigment Content. The results showed that the difference of concentration of liquid PES media give obvious effect (F statistic > F table) to the photosynthetic pigment content of *K. alvarezii* propagule, both for chlorophyll a and *phycoerythrin*. The content of chlorophyll a on *K. alvarezii* propagule increases along with the increasing cultivation duration at all treatments (Figure 3). On the contrary, the *phycoerythrin* content decreases along with the increasing cultivation time at all treatments (Figure 4).

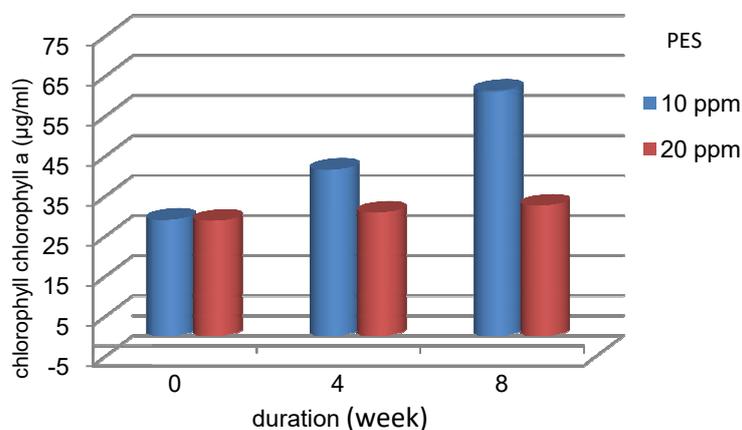


Figure 3 – Content of Chlorophyll a of *K. alvarezii* propagule in eight weeks of cultivation

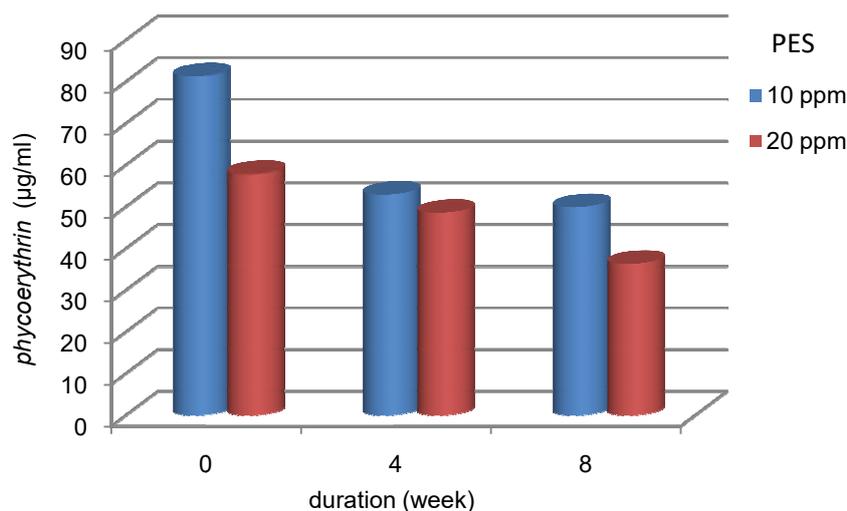


Figure 4 – Content of *phycoerythrin a* of *K. alvarezii* propagule in eight weeks of cultivation

At the end of the cultivation period (8 weeks), it was found that the 10 ml liquid PES treatment in 500 ml of sterile seawater gave chlorophyll a and *phycoerythrin* pigments of 61.308 µg/ml and 49.916 µg / ml, respectively. On the other hand, the liquid PES medium treatment 20 ml in 500 ml of sterile seawater gives chlorophyll a and *phycoerythrin* content of 32.608 µg/ml and 36.314 µg/ml (Table 2), respectively.

Table 2 – The average content of chlorophyll and *phycoerythrin* of *K. alvarezii* propagule at several doses of liquid PES

Liquid PES (ml)	Duration of cultivation (week)	Photosynthetic pigments (µg/ml)	
		Chlorophyll a	<i>phycoerythrin</i>
10	0	29.102 ± 0.575	81.301 ± 3.185
	4	41.598 ± 1.074	52.961 ± 2.501
	8	61.308 ± 0.330	49.916 ± 4.107
20	0	28.849 ± 0.983	57.925 ± 1.203
	4	30.866 ± 0.093	48.573 ± 7.266
	8	32.608 ± 0.648	36.314 ± 0.989

N and P Absorption. Nitrogen in the waters is generally in the form of nitrate (NO₂), nitrite (NO₃) and ammonia (NH₃), whereas the phosphorus in the waters is often abundant in various forms of phosphate compounds, including total phosphate (PO₄). The results of calculations on the N and P absorption based on the water quality (Table 3) show that *K. alvarezii* propagules absorbs more nitrate than nitrites and ammonia.

Table 3 – The absorption of nitrate, nitrite, ammonia, and total phosphate by *K. alvarezii* propagule in different concentrations of liquid PES media

Absorption (mg/g)	Liquid PES	
	10 ml	20 ml
NO ₂	1.316602	0.332046
NO ₃	*	*
NH ₃	0.06564	0.05405
PO ₄	0.5444	0.42471

Note: * not detected.

The amount of nitrate absorbed in the 10 ml liquid PES medium treatment showed the highest value of 1.316602 mg/g, whereas in the treatment of 20% liquid PES medium showed the value of 0.332046 mg/g. The absorbed nitrite cannot be detected because the nitrite content in waters < 0.01 mg/L. Meanwhile, the ammonia absorbed in the 10 ml liquid PES medium treatment also showed the highest value of 0.06564 mg/g, whereas in the

treatment of 20% liquid PES medium only absorbed 0.05405 mg/g. In the result of calculations of the total phosphate showed that *K. alvarezii* propagule on treatment of 10 ml liquid PES media absorbed the highest total phosphate absorption that is equal to 0.5444 mg/g, whereas in the treatment of 20 mL liquid PES medium was only able to absorb the total phosphate equal to 0.42471 mg/g.

The results of calculations on the N and P uptake based on the proximate analysis show that the *K. alvarezii* propagule in the 10 ppm liquid PES medium treatment was capable of absorbing the highest nitrogen and phosphorus, i.e. 0.16 $\mu\text{mol/g}$ per day and 0.03 $\mu\text{mol/g}$ per day, while for the *K. alvarezii* propagule with 20 ppm liquid PES medium treatment was only able to absorb nitrogen and phosphorus of 0.11 $\mu\text{mol/g}$ per day and 0.017 $\mu\text{mol/g}$ per day respectively.

Parameters of Water Quality. The results of measurement of the water quality during the eight weeks of cultivation can be seen in Table 4.

Table 4 – Parameters of Water Quality

No.	Parameters	Range of observation		References
		Liquid 10 mL PES	20 mL Liquid PES	
1	Temperature ($^{\circ}\text{C}$)	22.18 – 26.81	23.5 – 26.12	22- 33 (Lideman <i>et al.</i> , 2013).
2	Acidity (pH)	7.87 – 8.67	8.13 – 8.17	6 – 8 (Semedi <i>et al.</i> , 2016)
3	DO (mg/L)	5.03 – 5.3	5.15 – 5.46	5 – 8 (Semedi <i>et al.</i> , 2016)
4	Salinity (ppm)	33 – 34.2	36.2 – 38.8	30 - 35 (Dawes, 1981)

DISCUSSION OF RESULTS

PES fertilizer is a complete fertilizer as it contains macronutrient and micronutrient elements which are very complete and needed by seaweeds. Reddy *et al.*, reported that PES is typical fertilizer which is widely used for algae growth because of its complete nutrients contents and suitable for algae species, especially seaweed at the enlargement of the talus up to 3-5 cm in size. Mansilla *et al.*, (2007) stated that during the cultivation of seaweed seeds in the laboratory, fertilizers containing macronutrients (nitrogen, phosphorus, potassium) and micronutrients (Mo, Ni, Mn, B, Cu, Zn, Co, Cl, and Na, S), give higher growth rates on the seaweed compared to fertilizers containing only macronutrients.

The results of this study indicate that in general the 10 ml liquid PES medium gives the highest average weight of *K. alvarezii* propagule (Table 1) compared to the 20 ml liquid PES medium. This indicates that the nutrient content of 10 ml liquid PES medium is more suitable for the growth of *K. alvarezii* propagule cells. The absorption of nutrients contained in a 10 ml liquid PES medium can be utilized well by propagule through optimal water movement by aeration. Lobban & Harrison (1994) state that water movement is a factor affecting the growth of *K. alvarezii* because the movement or current plays an important role in improving nutrient exchange conditions and avoiding deposition to support growth which is also a means of nutrient transport. Water movement serves to supply nutrients and clean the dirt on the surface of the talus.

The high growth of *K. alvarezii* propagule in the 10 ml liquid PES medium treatment was also supported by the high average of daily growth rate of 3.58% per day compared with the treatment of 20 ml liquid PES medium with the average daily growth rate is 2.41% per day (Figure 2). The value of daily growth rate in the treatment of 10 ml PES medium is quite good considering that growing rate of *cottonii* seaweed at the time being cultivated in the nature ranges from 3-5% depending on the season (Thirumaran & Anantharaman, 2009). Young *et al* (2011) stated that in *in vitro* micro-propagation type *Eucheuma sp.*, daily growth rate on PES medium is higher than von Stosch, F/2 and sea water media. Further, the results of Sulistiani, *et al* (2011) showed that the daily growth rate of propagule at 20 ml/L liquid PES was not significantly different with the concentration of 10 ml/L liquid PES, but the

second growth rate treatment was higher and significantly different with growth rate at 5 ml/L treatment. For the purpose of efficient use of chemicals, then in the enlargement of propagules should not always use the concentration of 20 ml/L, but also the use of the concentration of 10 ml/L PES.

Treatment with 10 ml liquid PES medium was not only to give the best weight gain and daily growth rate, but also provide better photosynthetic pigment (chlorophyll a) (see Table 2). Lobban & Harrison (1994) stated that sunlight directly affects the absorption of nutrients, active transport and increases the growth rate of the seaweeds. The sunlight through the photosynthesis process is able to release some energy, and this energy is used by ions and elements to pass through the cell membrane of the plants. At the time the ions enters, the ions function according to their respective functions, such as enzyme cofactors, enzyme activators, and general work of other ions. In addition, the elements that enter the cell will carry some energy.

The process of photosynthesis in the seaweeds not only utilizes chlorophyll pigment, but there are other accessories or complementary pigments, namely *phycobillyprotein* (R-*phycocyanin*, *allophycosianin* and *phycoerythrin*), (Aguirre et al., 2001; Naguit & Tisera, 2009; Zhao & He, 2009; Chakdar et al., 2012; Pugalendren et al., 2012). The complementary pigments analyzed in this study were *phycoerythrin* pigment. Based on the average value indicates that the content of *phycoerythrin* pigment inversely proportional to chlorophyll a. The higher content of *phycoerythrin* pigment at the beginning of cultivation is presumed as the amount of chlorophyll a is still low, so that it is insufficient in the absorption of light for the process of photosynthesis; this triggers the formation of more *phycoerythrin* (Kawsar et al, 2011; Pumas et al., 2012). *Phycoerythrin* is a protein that acts as a complementary pigment in red algae and blue-green algae that serves to help chlorophyll-a in absorbing light in the process of photosynthesis. The light absorbed by *phycoerythrin* is efficiently transferred to *phycocyanine*, then to *allophycocyanine* and to *allophycocyanine* B, and finally goes to the chlorophyll (Bryant, 1982; Chakdar et al. 2012; Pugalendren et al., 2012).

The increased weight and higher chlorophyll content during the 10 ml liquid PES medium treatment was believed to be strongly influenced by the nutrient content of the culture medium. In general, seaweed growth is closely related to photosynthetic pigment content, i.e. chlorophyll a. If the absorption of the light by chlorophyll a is sufficient, the process of photosynthesis may occur optimally which in turn affects the faster growth rate of the seaweeds. Therefore any growth process and pigment formation will require nutrients. The most important and indispensable nutrients needed by seaweed are nitrogen (N) and phosphorus (P). Harrison and Hurd (2001) state that the growth and development of the seaweed requires sufficient light and quality nutrients such as nitrate and phosphate. Nitrates and phosphates are needed as the basic ingredients of protein constituents and the formation of chlorophyll in the process of photosynthesis. In relation with the tissue culture activities, nitrate and phosphate can be derived from the culture medium. The results of study carried out by Dong et al. (1990) showed that the provision of N in the seaweed *Laminaria japonica* can increase the amount of chlorophyll a. Kim et al., (2007) states that the synthesis of chlorophyll a and *phycoerythrin* requires N as well.

The nutrients (N and P) enter into the body of seaweed by diffusion through the entire surface of the body of the plant. The absorption of nutrients through the diffusion process is supported by the movement of water in the aeration-assisted cultivation medium. Lobban & Harrison (1994) asserted that the elements in the waters will enter into the algae through the process of absorption, diffusion, and osmosis; there should be the balance of ions and elements between the outside and inside of the cells. The more diffusion takes place, it will accelerate the metabolism process, thus increasing the growth rate of the seaweeds.

Nitrogen and Phosphorus is a mineral nutrient that limits plant growth due to its large availability in media (Harrison & Hurd, 2001; Harpole et al 2011). The results of this study indicate that 10 ml liquid PES medium also provides the most nutrient absorption of nitrate and total phosphate (Table 3). After the proximate analysis was conducted, it was shown that *K. alvarezii* propagule in the 10 ml PES liquid medium treatment was the most nitrogen and phosphorus-containing seaweeds in the body that could be used for the faster growth. The

more seaweed absorbs nitrogen and phosphorus, the greater the amount of nitrogen and phosphorus contained in the seaweed, and this indicates that the better quality.

The absorption rate of nitrate and phosphate has a positive correlation with the increasing growth rate as well as synthesis of chlorophyll a and *phycoerythrin* (Dong et al., 1990; Gordillo et al. 2002; Kim et al., (2007). Lea and Azevedo (2006) stated that growth may occur as the result of the function of nitrate as an ingredient of protein. It is presumably the protein has potential to activate the enzymes in the plant body; it will change the substrate into new products as the result of duplication or multiplication of cells. The bigger amount of Nitrogen in plants may cause the bigger formation of glutamic acid. Initially nitrogen is absorbed is in the form of ammonia, and then ammonia change to glutamic acid, catalyzed by enzyme glutamine synthase. Glutamic acids serve as the base material in biosynthesis of amino acid and nucleic acid. Glutamic acid will form acid *aminolevulinic* (ALA) which acts as a *porphyrin* precursor ring in the formation of chlorophyll. Therefore, the amount of nitrogen content can affect photosynthesis results through photosynthetic enzyme and chlorophyll content (Robinson 1995, Lea & Mifflin, 2003; Suzuki & Knaff, 2005; Yaronskaya et al., 2006)

In addition to nitrate, phosphate is also a major nutrient factor to meet the needs of algae. Phosphate is a component that plays a role in the formation of DNA, lipid and energy metabolism, such as ATP and NADPH. The production of ATP and NADPH through a light reaction to the photosynthesis process will produce the energy to be used in the Calvin cycle to phosphorylate and convert 3-phosphoglycerate (PGA) to Glyceraldehyde 3-phosphate (G3P) and regenerate Ribulose 1.5-bisphosphate (RuBP) (Farguhar et al., 1980; Reich et al., 2009). The content of phosphorus in algae cells affects phosphate uptake, which is reduced in line with increased phosphate content in cells. Several types of algae are able to absorb the phosphate beyond their needs (luxury consumption) and are able to absorb phosphates at very low concentrations and have alkaline phosphatase enzymes that can convert phosphates into orthophosphate ready to use (Sahoo & Ohno, 2001).

Although nitrate and phosphate are essential for the growth and process of plant photosynthesis, plants need only this element in sufficient quantities. Therefore, based on the results of this study, it is believed that the 10ml liquid PES medium provides sufficient N and P elements for the growth and photosynthesis process of *K. alvarezii* propagules. As the concentration of liquid PES media was raised to 20 ml, the growth and the photosynthesis rate decreased. This suggests that increased concentrations of nutrients above optimal requirements will not increase the growth of the plant. This is in line with Knecht and Göransson's (2004) opinion that plants require a certain minimum concentration of nutrients to grow, and when nutrient concentration rises to optimum levels, it increases the relative growth rate. The increased concentrations of nutrients above the optimum will not increase growth, and at very high concentrations the nutrients even will become toxic, the growth and the rate of photosynthesis will decrease, and the plant may die.

Besides supported by the nutrients, the growth rate may increase if the media and the environment around the cultivation are in accordance with needs or tolerable ranges. Aks and Azansa (2002) stated that environmental factors that have an important role in the cultivation of *K. alvarezii* such as temperature, salinity, nutrition, light and several other ecologic factors. The water quality that has been measured during the cultivation indicates a value that is still in the good and tolerable range (Table 4.)

CONCLUSION

The results of this study indicate that the use of 10 ml liquid PES medium gives higher weight gain, better daily growth rate and better photosynthetic pigment content (chlorophyll a and *phycoerythrin*) than the use of 20 ml liquid PES medium for the seaweed *K. alvarezii* propagule through tissue culture. It is believed that the 10 ml liquid PES medium provides the optimum N and P elements for the growth and photosynthesis process of *K. alvarezii* propagules.

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ANALYSIS OF DECISION FACTORS TO PURCHASE ORGANIC FERTILIZER BY WHITE PEPPER FARMERS

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ABSTRACT

This study aims to determine the effect of farmers' perceptions of quality and attitudes toward purchasing decisions. Population in this study is white pepper farmers in Bangka Belitung Province, Indonesia. The method of determining the samples is performed by the quota method, based on sampling criteria performed then the number of samples selected as many as 97 farmers. The results show that the perception of quality has a positive and significant effect on purchasing decisions; the farmer's attitude has a positive and significant effect on purchasing decisions and simultaneously has a significant effect. The decision to purchase organic fertilizer by respondents is not qualified concerning productivity.

KEY WORDS

Farmers, quality perceptions, attitudes perceptions, purchasing decisions.

The era of globalization that is happening to this day. Age makes the development of agricultural technology that is increasingly beneficial to the environment, to make people more efficiently run the activities in his life every day and care about the surrounding environment (Klerkx, L., Aarts, N., & Leeuwis, C., 2010). One type of technology that is very influential for farmers today is organic fertilizer (Noltze, M., Schwarze, S., & Qaim, M., 2013). Organic Fertilizer is the most potent fertilizer from the material of the remains of living creatures either in the form of crops or livestock waste, such as straw, rice husk, coffee skin, cattle dung, snail shells or shells and others which are then processed through fermentation process or decomposition (Polprasert, C., 2017).

The world of agriculture is currently incessantly implementing go green program in which all food products are organic (De Schutter, O., & Vanloqueren, G., 2011). The use of organic fertilizer is not new because the use of fertilizer is part of agricultural history (Dahlberg, K. (Ed.), 2012). The use of fertilizer is estimated to have started since the beginning of humans knows farming, which is about several thousand years ago (Monastersky, R., 2015). The primitive form of fertilizer use in improving soil fertility starts from the old human culture in the Nile, Euphrates, Indus, China and Latin America rivers (Monastersky, R. (2015). In Indonesia, organic fertilizer has long been known to farmers, the population of Indonesia has known organic fertilizer long before the implementation of the green revolution in Indonesia (Jain, H. K., 2010). After the green revolution, most farmers prefer to use artificial fertilizers because it is practical to use and more efficient, easy to obtain (Jain, H. K., 2010).

Most farmers are heavily dependent on artificial fertilizers (chemical), which can negatively impact the development of agricultural production and decrease soil fertility since the use of chemical fertilizers, in the long run, will actually "kill" the soil (Sudtasan, T., & Suriya, K., 2012). In this case, farmers are faced with two options, namely using organic fertilizer or using an inorganic fertilizer that is already inherent in the farmers. The use of organic fertilizer by farmers can be influenced by the perception of the fertilizer (Ajewole, O. C., 2010). If the first perception obtained by farmers, it will lead to a decision to buy organic fertilizer.

Perception is a learning experience about the object of events or relationships obtained by concluding information and interpreting messages (Broadbent, D. E., 2013). Many factors can influence a person's decision to make a purchase. According to Kotler, P., & Armstrong, G. (2013), a person's purchasing decisions can be influenced by the

motivation of perception and attitude. Kotler & Armstrong's earlier statements are in line with Tan, B., & Lau, T. C. (2011) which states that a person's decision to make a purchase is influenced by perception and attitude.

Farmers as consumers in making purchasing decisions will consider several factors, including the perception of quality (De Cannière, M. H., De Pelsmacker, P., & Geuens, M., 2010). Perception of quality is the consumer's perception of the overall quality or superiority of a product or service related to what is expected by the customer (Kenyon, G.N., & Sen, K. C., 2016). Consumer perceptions of a product can come from information received or from past consumer experience (Kenyon, G. N., & Sen, K. C., 2016). Perception, each consumer on the quality of a product, will vary. Perceptions that appear can be both positive and negative. Attitude is an evaluation, a person's feelings, and a favourable or unfavourable and enduring tendency towards someone for a particular object or idea (Kotler, P., 2012). Consumers will believe in the information it receives and chooses a particular brand to buy, and it is related to the attitude developed (Lin, L. Y., 2010).

Consumer beliefs and preferences of a brand is a consumer attitude (Buil, I., Martínez, E., & De Chernatony, L., 2013). In many ways, attitudes toward a particular brand often affect whether consumers will buy or not. A positive attitude toward a particular brand will allow consumers to purchase the brand; otherwise negative attitudes will deter consumers genuinely make a purchase (Oliver, R. L., 2014). Based on the phenomenon and some previous research above, the researchers are interested to know the influence of the perception of quality and attitude of white pepper farmers to the decision to purchase organic fertilizer in Bangka Belitung Province, Indonesia.

METHODS OF RESEARCH

This study uses a quantitative approach. According to Babbie, E. R. (2010) quantitative methods emphasize objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Quantitative research focuses on gathering numerical data and generalizing it across groups of people or explaining a particular phenomenon (Mujis, D., 2010). Data collection through research instruments in the form of questionnaires, data analysis is statistical or quantitative aims to test the hypothesis. The hypotheses proposed by researchers are:

H1: The existence of quality perception has the positive and significant influence on white pepper farmer decision in purchasing organic fertilizer.

H2: The existence of attitude perception has the positive and significant influence on white pepper farmer decision in purchasing organic fertilizer.

H3: The existence of quality and attitude perception has the positive and significant influence on white pepper farmer decision in purchasing organic fertilizer

The place of this research was conducted in Bangka Belitung Province, Indonesia. Bangka Belitung Province is famous as one of the world's white pepper commodities producer named *Muntok White Pepper* (International Pepper Community). Samples in this research are some white pepper farmer representing 4 Regency in Bangka Belitung Province (see table 1).

Table 1 – Distribution of samples

No	Regency	Samples	Productivity Characteristics
1	South Bangka	37	High
2	West Bangka	20	Medium
3	Bangka	20	Medium
4	Central Bangka	20	Medium
	Total	97	-

Source: Data processed by researchers, 2017.

The number of samples to be used in this study is determined by using quota sampling technique. Quota sampling method is a non-probability sampling, and it can be defined as a

sampling method of gathering representative data from a group (Saunders, M., Lewis, P. & Thornhill, A., 2012). Application of quota sampling ensures that sample group represents particular characteristics of the population chosen by the researcher (Saunders, M., Lewis, P. & Thornhill, A., 2012).

In this study, the researcher uses the Likert scale as a variable measuring instrument. The Likert scale according to Sugiyono (2016) is used to measure opinions, attitudes, and perceptions of a person or a group of people about a social phenomenon. The method of calculation used on the Likert scale itself is to ask a respondent some questions, and then the respondent is asked to provide an answer. The answer to each question item has gradation strongly agree to disagree strongly then it will be given a weight value from 1 to 5 (Sugiyono, 2016). The descriptive statistical analysis used in this study is a statistic used in data analysis by describing the data that has been collected as it is without intending to make generalized conclusions. The formula to calculate the magnitude of the questionnaire results interval is as follows:

$$Range = \frac{Highest\ score - Lowest\ score}{Total\ of\ classification}$$

Table 2 – Interval scale on Likert

No.	Interval Scale	Information
1.	1,00 – 1,80	Very low
2.	1,81 – 2,60	low
3.	2,61 – 3,40	Medium
4.	3,41 – 4,20	High
5.	4,21 – 5,00	Very high

Source: Adapted from Sugiyono (2016).

Test of research instrument using validity and reliability test. An instrument is said to be valid if it can measure what is desired or reveal the data of the variables studied appropriately (Ferdinand, 2014). The testing technique for validity test is using Bivariate Pearson correlation. Bivariate Pearson analysis is done by correlating each item score with a total score (Ghozali, 2016). Test validity is done by comparing r-count with r-table with significant 5%, if r-count > r-table then declared valid (Ghozali, 2016). Conversely, if r-count < r-table then the data declared invalid. Meanwhile, reliability test is a tool to test the level of trust (reliability) questionnaire instrument which is an indicator of the variable to know the consistency of the measuring tool and consistent if the measurement is repeatedly done from time to time (Sugiyono, 2016). The method used in this research is Cronbach's Alpha method. Reliability test is done by comparing r-count with r-table with significant 5%, if r-count > r-table then declared reliable (Ghozali, 2016). Conversely, if r-count < r-table then the data declared not reliable.

In addition to the above instrument test, there are also inferential statistical tests of logistic regression analysis. Before multiple regression analysis is applied, it is necessary to ensure that data has BLUE (Best Linear Unbiased Estimator) criteria (Gujarati, 2004). To apply BLUE criterion, the researcher tested the data with normality test, multicollinearity test and heteroskedasticity test. The normality test is intended to show that samples are taken from normally distributed populations (Sugiyono, 2016). The technique used to test normality in this study through Kolmogorov-Smirnov test. Kolmogorov-Smirnov test criteria for normally distributed data are p-value (Sig.) > 0.05 (Ghozali, 2016). Then, multicollinearity test is a regression model test tool used to find the correlation between independent variables. A good regression model should not occur correlation between independent variables (Sugiyono, 2016). The multicollinearity test can be done by looking at the VIF (Variance Inflation Factor) value and its tolerance value (Ghozali, 2016). The criterion is that if the VIF value is between 1-10 and the tolerance value of ≥ 0.1 , then there can be no multicollinearity problem (Ghozali, 2016). While heteroskedasticity test is one of the regression model test tools to determine whether there is inequality of variance from residual one observation to

another observation (Sugiyono, 2016). If the variance value of the residual one observation to another observation remains, then it is said homoskedasticity and if different it is said heteroscedasticity (Ghozali, 2016). A regression model is said to be good if the model is homoscedasticity or there is no heteroskedasticity problem. One method to detect the presence of symptoms of heteroskedasticity is by park test. The criterion is if the value of significance on the variable > 0.05 , then it can be said there is no problem heteroskedasticity (Ghozali, 2016).

After BLUE is applied, next is to analyze the data with multiple linear regression analysis. The analysis is used to measure how far the influence of quality perception and attitude perception to the decision of purchasing organic fertilizer. Multiple linear regression analysis was performed using SPSS 25.0 application. SPSS application proved to facilitate researchers in the processing of quantitative data (Kusumah, 2018). In general, the form of regression line equation can be formulated as follows:

$$Y = a + b_1X_1 + b_2X_2$$

Where:

Y: Purchase Decision (dependent);

a: Constants;

X_1 : Quality perception (independent);

X_2 : Attitude perception (independent);

b_1 - b_2 : Regression coefficients for each independent variable.

Hypothesis testing has been described previously using t-test and f-test. A t-test or partial test shows how much influence of independent variable to dependent variable individually/ partially. $H_0: H_1-H_2 = 0$, Show there is no influence between independent variable to dependent variable. $H_a: H_1-H_2 \neq 0$, Show there is influence between independent variable to dependent variable. The decision criterion is if the significance value (Sig.) < 0.05 , then H_0 is rejected and H_a accepted. Meanwhile, the f-test or simultaneous test is used to determine whether the independent variable influences the dependent variable simultaneously or together. The test criterion is similar to the t-test. After testing the hypothesis, the final test is the coefficient of determination test. This test uses an adjusted R^2 value. This test is used to find out how far the independent variable can explain the dependent variable. The value lies between 0 and 1. If the value is close to 0, then the ability of the dependent variable to explain the independent variable is insufficient. If the value is close to 1 means, the dependent variable has the ability to explain the independent variable.

RESULTS OF STUDY

Characteristics of respondents in this study are the primary data obtained from the distribution of questionnaires to respondents, i.e. white pepper farmers. Data from 97 respondents in this study include sex, age, and occupation. Here is a description of the characteristics of respondents in this study based on gender and age:

Table 3 – Characteristics of Respondents by Gender

No.	Gender	Frequency	Percentage (%)
1	Male	83	85.6
2	Female	14	14.4
	Total	97	100

Source: Data processed by researchers, 2017.

Based on these data it can be concluded that white pepper farmers are dominated by male gender (85.6%).

Table 4 – Characteristics of Respondents by Age

No.	Age	Frequency	Percentage (%)
1	< 18 year	4	4.1
2	18 – 25 year	5	5.2
3	26 – 32 year	18	18.6
4	> 32 year	70	72.2
Total		97	100

Source: Data processed by researchers, 2017.

Based on these data it can be concluded that white pepper farmers are dominated by more than 32 years old farmers (72.2%). Recapitulation of respondents' answers to perceptual variables of quality through statistical description analysis is shown in the table below:

Table 5 – Respondents' answers

No. item	Answer Frequency					N	Total Score	Mean Score	Conclusion
	Strongly Agree (5)	Agree (4)	Neutral (3)	Not Agree (2)	Strongly Not Agree (1)				
1	3	6	37	33	18	97	234	2.41	Low
2	1	9	27	44	16	97	226	2.33	Low
3	2	6	22	42	25	97	209	2.15	Low
Average Mean Quality Perception								2.30	Low

Source: Data processed by researchers, 2017.

Based on table 5 above the mean or average score of 2.30 from 5.00 (46%). So the results can be concluded that the respondents or white pepper farmers in Bangka Belitung assume that the quality of organic fertilizer is low when compared with chemical fertilizers. Recapitulation of respondents' answers to perceptual variables of attitude through mathematical description analysis is shown in the table below.

Table 6 – Respondents' answers

No. item	Answer Frequency					N	Total Score	Mean Score	Conclusion
	Strongly Agree (5)	Agree (4)	Neutral (3)	Not Agree (2)	Strongly Not Agree (1)				
1	0	4	20	48	25	97	197	2.03	Low
2	0	1	19	47	30	97	185	1.91	Low
3	0	0	24	44	29	97	189	1.95	Low
Average Mean Attitude Perception								1.96	Low

Source: Data processed by researchers, 2017.

Based on table 6 above the mean or mean value of 1.96 from 5.00 (39.2%). So the results can be concluded that the respondents or white pepper farmers in Bangka Belitung have a low attitude toward organic fertilizer when compared with chemical fertilizers. Recapitulation of respondents' answers to perceptual variables of purchasing decision through statistical description analysis is shown in the table below.

Table 7 – Respondents' answers

No. item	Answer Frequency					N	Total Score	Mean Score	Conclusion
	Strongly Agree (5)	Agree (4)	Neutral (3)	Not Agree (2)	Strongly Not Agree (1)				
1	0	3	29	38	27	97	202	2.08	Low
2	1	12	24	35	25	97	215	2.22	Low
3	0	0	14	53	30	97	178	1.83	Low
4	1	4	32	39	21	97	216	2.23	Low
Average Mean Quality Perception								2.09	Low

Source: Data processed by researchers, 2017.

Based on table 7 above the mean value of 2.09 from 5.00 (41.8%). So the results can be concluded that the respondents or white pepper farmers in Bangka Belitung have a low purchasing decision toward organic fertilizers when compared with chemical fertilizers.

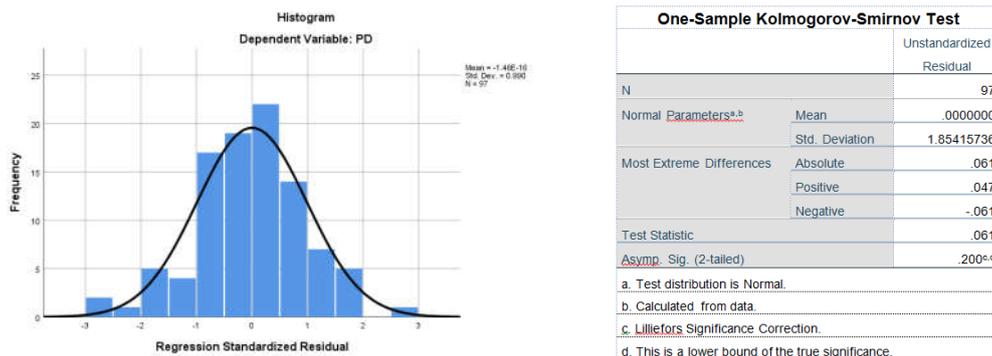
In testing the instrument has been tested the validity and reliability. The test uses r-table of 0.1996 (two-tailed, df = n-2) as a comparison with r-count. The result of validity and reliability test in this research can be seen in the following table:

Table 8 – Validity and Reliability Tests

Variable	Item	r _{count} (Validity)	r _{count} (Reliability)	r _{table}	Information	
Attitude Perception (A)	A1	.848	.772	.1996	Valid	Reliable
	A2	.861			Valid	
	A3	.778			Valid	
Quality Perception (Q)	Q1	.832	.656	.1996	Valid	Reliable
	Q2	.783			Valid	
	Q3	.696			Valid	
Purchasing Decision (PD)	PD1	.817	.735	.1996	Valid	Reliable
	PD2	.817			Valid	
	PD3	.694			Valid	
	PD4	.669			Valid	

Source: Data processed by researchers, 2017.

From table 8 above shows that r-count > r-table so it can be concluded that all items and instrument variables declared valid and reliable. After tested the validity and reliability of the instrument, the next step is to test data with BLUE terms. Normality test can be seen in the figure below.



Source: Data processed by researchers, 2017.

Figure 1 – Normality test

From figure 1 above can be seen that the location of histogram normality in the middle follow the parabolic line, it can be said data in this study have a normal distribution. While in figure 1 above Kolgomorov-Smirnov test shows the value of Asymp. Sig. (2-tailed) 0.200 > 0.05 so it can be concluded that the data is normally distributed. The next BLUE test is a multicollinearity test. Multicollinearity test results can be seen below:

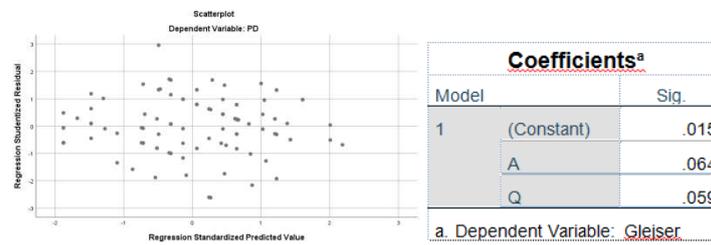
Table 9 – Multicollinearity test

Variables	Collinearity Statistics		Information
	Tolerance	VIF	
Attitude Perception	.771	1.297	There is no multicollinearity problem
Quality Perception	.771	1.297	There is no multicollinearity problem

Source: Data processed by researchers, 2017.

Based on the results in table 9, multicollinearity test above shows that the tolerance value for each independent variable is between 0-1 and the VIF value for each independent

variable is between 1-10 it can be concluded that there is no multicollinearity problem or there is no correlation between each independent variable. The next test is a heteroscedasticity test. Here are the results of heteroscedasticity test using scatterplot and Glejser Test.



Source: Data processed by researchers, 2017.

Figure 2 – Heteroscedasticity test

Based on figure 2 above, see the dots (samples) spread randomly above and below the number 0 on the y-axis, and did not form a specific pattern so it can be concluded that the regression model in this study did not experience heteroskedasticity problem. While in figure 2 above heteroskedasticity test with Glejser test seen Significance value all independent variables > 0.05, it can be concluded that the regression model does not experience heteroskedasticity problems. After BLUE is fulfilled, then the next analysis is multiple linear regression analysis, where the analysis has several tests such as t-test, f-test, beta value and coefficient of determination. The results of multiple regression analysis can be seen in the following table:

Table 10 – Beta values

Model	Unstandardized Coefficients		Standardized Coefficients
	B	Std. Error	Beta
1 (Constant)	2.064	.726	
Attitude (X ₁)	.665	.115	.491
Quality (X ₂)	.353	.100	.300

a. Dependent Variable: Purchasing Decision (Y)

Source: Data processed by researchers, 2017.

Based on data from table IV.35 above, regression equation can be formed as follows:

$$Y = 2.064 + 0.491X_1 + 0.300X_2$$

The equation shows that:

- The value of constant 2,064 obtained from the calculation shows that if the attitude perception variable and perceptual quality variable equal to zero, then the purchase decision is 2.064.
- The coefficient of beta variable attitude perception variable has a positive value of 0.491 shows the relationship between attitude perception with purchasing decision which means every increase of 1 unit in attitude perception variable will cause an increase in purchasing decision variable of 0.491 and vice versa.
- The value of the beta coefficient of the quality perception variable has a positive value of 0.300 shows the relationship between the perception of quality with the purchase decision which means an increase of 1 unit in the quality perception variable will cause an increase in the purchase decision variable of 0.300 and vice versa.

Based on the results in table 11, the calculation of the sig value for X₁ is 0.000 smaller than the level of significance 0.05. Thus it can be concluded that the attitude perception variable significantly influences the purchase decision variable. The sig value for X₂ is 0.001

smaller than the level of significance 0.05. Thus it can be concluded that the quality perception variable significantly influences the purchase decision variable.

Table 11 – t-test

	Model	t	Sig.
1	(Constant)	2.841	.006
	Attitude	5.759	.000
	Quality	3.514	.001

a. Dependent Variable: Purchasing Decision

Source: Data processed by researchers, 2017.

Table 12 – F-test

	Model	Sum of Squares	df	Mean Squares	F	Sig.
1	Regression	295.467	2	147.733	42.077	.000
	Residual	330.038	94	3.511		
	Total	625.505	96			

a. Dependent Variable: PD

b. Predictors: (Constant), Q, A

Source: Data processed by researchers, 2017.

Based on the results in table 12, it can be seen that the significance value of 0.000 is smaller than 0.05, it can be concluded that perceptual attitude variables and variables of quality perception simultaneously or together have a significant effect on purchasing decisions variable.

The coefficient of determination results can be seen in the following table:

Table 13 – Coefficient of determination test

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	.687	.472	.461	1.874

a. Predictors: (Constant), Q, A

Source: Data processed by researchers, 2017.

Based on the results in table 13, it can be seen that the value of determination coefficient (Adjusted R Square) obtained is 0.461 or 46.1%. It means that the purchase decision variable can be explained by perceptual attitude variables and quality perception variables of 46.1%, while the remaining 53.9% of purchasing decisions can be explained by other variables outside the variables studied.

CONCLUSION AND SUGGESTIONS

Based on the above data calculations, it can be concluded that all hypotheses mentioned above can be received positively and significantly. Based on observations, interviews, and questionnaires conducted by researchers on white pepper farmers in Bangka Belitung Province (respondents), dominant respondents choose not to buy organic fertilizer because organic fertilizer after it was tried could not increase the productivity of white pepper compared with chemical fertilizer. Organic fertilizers are only applied when the initial planting, and it was felt by the respondents did not significantly affect the productivity of white pepper. While the perception of quality of organic fertilizer, respondents feels that the quality of organic fertilizer is not as good as the quality of chemical fertilizers. The quality of organic fertilizer perceived by respondents is only suitable for farmers who come from Java. Respondents felt that if they applied organic fertilizer as the primary fertilizer, it would have an impact on their lack of farm produce. Most respondents are not concerned with

agricultural cultivation that prioritizes organic farming systems. Respondents are only concerned with the results of white pepper as much as possible regardless of soil health.

As a suggestion, it is needed extension by the local government of Bangka Belitung Province that the planting of white pepper using organic fertilizer is better than chemical fertilizer for the long term. There needs to be further testing on applying the right organic fertilizer to the white pepper farmers. Testing can be done by researchers from abroad and in the country so that it can change the perception of white pepper farmers in the province of Bangka Belitung to be able to use organic fertilizers intensively and create conditions of white pepper farming harmonious with the environment.

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ANALYZING THE ADAPTIVE CAPACITY TO CLIMATE CHANGE OF THE RICE FARMERS: A CASE STUDY OF PASURUAN REGENCY, EAST JAVA, INDONESIA

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ABSTRACT

As the seasonal crops, rice production is very dependent on the climate carrying capacity, so the changing climate requires the ability of the farmers to adapt. On the other hand, climate change is still a new and complex issue for most people, followed by differences in response to its impact. This study explores the adaptive capacity to climate change of the rice farmers. Survey method applied in rice cultivation area affected by climate change involving 96 rice farmers as respondents. The result shows that rice farmers are less adaptive to climate change, especially those in highland agroecosystem zones. It requires a flow of information and the availability of climate change adaptation support components to the farmers' side, as well as studies that can extract the determinants of adaptive capacity to climate change of the farmers.

KEY WORDS

Adaptation, agroecosystem zone, climate change, information, rice farmers.

Climate change has occurred in Indonesia. The temperature has been rising for decades and is expected to continue to increase until 2020 and there are indications of the rising sea levels up to 2100 (IPCC, 2007) that could cause coastal lowland areas such as Surabaya to have a higher risk of flood (PEACE, 2007). In addition, there have been changes in the rainy and dry seasons. Rainfall in the rainy season in southern Indonesia increased, while rainfall in the dry season in the northern region has increased. (Boer and Faqih, 2004; Naylor *et al.*, 2007).

As the seasonal crops, the success of rice field production is highly dependent on the climate carrying capacity. Generally, farmers rely on instinct or habit in the application of cropping pattern that refers to *pranotomongso*, a kind of dating of the Javanese community related to planting activities. Climate change shifts those provisions due to reduced water discharge from water sources, prolonged rainy or dry seasons, and extreme weather, followed by the decrease in rice production. The impact of climate change in Indonesia, is predicted by Handoko *et al.* (2008), will lead to the decrease in rice production by 10,473,764 tons in 2050 or 20.3% of production in 2006 of 51,647,490 tons, while in East Java, is predicted by Amien *et al.* (1996), will decrease by about 1% per year. In Pasuruan itself, rice productivity has decreased by 0.21% due to climate anomalies and brown planthopper pest attack (Maria, 2017).

These real conditions and estimation confirm that the sustainability of rice farming and local food security requires farmers' ability to adapt to climate change. On the other hand, climate change is still a new and complex issue for most people, followed by differences in

responses to local impacts (Asplund, 2014; Buys *et al.*, 2011; Wibeck, 2014). This article aims to describe the adaptive capacity to climate change of the rice farmers in the lowland, medium and highland agroecosystem zones.

METHODS OF RESEARCH

The study is designed as survey study. The study location was chosen purposively in Gempol, Purwosari and Prigen Sub-districts of Pasuruan, East Java, because of its lowland, medium, and highland agroecosystems are affected by climate change. The amount of sample is set at 96 farmers consisting of 32 farmers from each sub-district drawn by simple random technique proportionally. Data were collected by questionnaire instrument.

The adaptive capacity to climate change of the respondents is measured through composite scores (means) of all questions (Budiaji, 2013) on indicators of knowledge level, attitude, skill level and application of climate change adaptation. Data were analyzed descriptively through single table and test of difference of the mean value of t-test.

Table 1 – Score and category of respondent value attainment in each indicator

Value Attainment	Score	Category			
		Knowledge	Attitude	Skill	Application
Very High $> \bar{x} + \frac{1}{2}s$	1	Very good	Very supportive	Very skilled	Almost always
High $\leq \bar{x} + \frac{1}{2}s$	0.75	Good	Supportive	Skilled	Often
Low $\geq \bar{x} - \frac{1}{2}s$	0.50	Less good	Less supportive	Less skilled	Seldom
Very Low $< \bar{x} - \frac{1}{2}s$	0.25	Not good	Not supportive	Not skilled	Never

Source: Modified from Nakuja *et al.* (2012); Mabe *et al.* (2012).

Note: \bar{x} = mean of respondent value attainment in each indicator; s = deviation standard of respondent value attainment in each indicator.

Table 2 – Distribution of adaptive capacity to climate change of the respondents

Adaptive Capacity (AC)	Score Range	
	Distribution (D)	Mean (M)
Not adaptive	$DAC \leq 0.50$	$MAC \leq 0.50$
Less adaptive	$51 \leq DAC \leq 0.75$	$51 \leq MAC \leq 0.75$
Adaptive	$DAC > 0.75$	$MAC > 0.75$

RESULTS AND DISCUSSION

Adaptive Capacity to Climate Change of the Respondents. The result of the analysis shows that most respondents are still less able to adapt to climate change as seen in Figure 1. The adaptive capacity scores presented in Table 3 also shows that, in general, and in every indicator, respondents are still less adaptive to climate change.

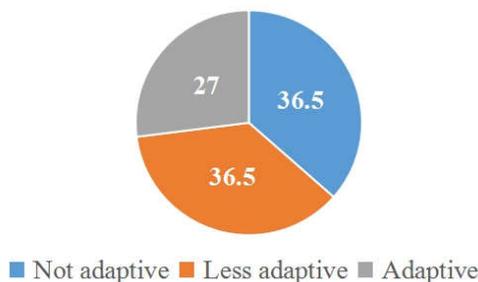


Figure 1 – Distribution of respondents based on adaptive capacity to climate change, %

Table 3 – Adaptive capacity to climate change of the respondents

Adaptive Capacity to Climate Change	Score	Category
Knowledge of climate change adaptation	0.66	Less adaptive
Attitudes to climate change adaptation	0.61	Less adaptive
Skills of climate change adaptation	0.57	Less adaptive
Application of climate change adaptation	0.62	Less adaptive
Average	0.62	Less adaptive

The less adaptive knowledge of climate change adaptation is shown by the knowledge scores of respondents in Table 4. This condition occurred because most of the respondents still do not know the name and specification of rice varieties that are tolerant to immersion, drought, and pest attack. Almost all respondents still plant rice varieties such as IR64, Ciherang, and Way Apo Buru which are already vulnerable to the climate change effects. Knowledge of cropping pattern is also less adaptive because there are still many respondents who less aware of the existence and importance of climate information for the management of rice farming, so they often confused in defining the current season and determine the beginning and planting commodity.

Table 4 – Level of knowledge of climate change adaptation of the respondents

Knowledge of Climate Change Adaptation	Score	Category
Water management	0.75	Less adaptive
Application of cropping pattern according to the climate conditions	0.72	Less adaptive
Utilization of climate-change-tolerant rice varieties	0.52	Less adaptive
Average	0.66	Less adaptive

Despite having the highest score, the knowledge of water management of respondents to overcome the water stress is still less adaptive. There are still some respondents who are less aware of water storage technology. Pasuruan has long been known as a district with many sources of water so that respondents are not getting used to storing water to overcome the lack of water due to population and industry growth or unpredictable weather. They prefer to request irrigation water from nearby districts although the supply may not necessarily meet the needs.

Attitudes to climate change adaptation are still less adaptive, primarily to the effects of climate change as shown in Table 5. Many respondents think that the climate is determined by God and cannot be changed by humans. Respondents' attitudes are also heavily based on the assessment of cost advantages of climate change adaptation strategy application. For many respondents, resting the land means lost income. In locations where the water is available throughout the year, rotating the cropping commodities is considered to be detrimental because rice is more needed, although it is a powerful strategy to restore soil nutrients and break the life cycle of pests. On the other hand, most respondents are adaptive to the paddy cultivation technology that is in line with some climate change adaptation strategies such as simultaneous planting, use of organic materials, and adjustment of agricultural practice with the weather conditions. Thus, respondents are more scientific about the technology of rice cultivation that they may apply but tend to be fatalistic to the climate problems.

Table 5 – Level of attitudes to climate change adaptation of the respondents

Attitudes to Climate Change Adaptation	Score	Category
Climate change	0.67	Less adaptive
Climate change adaptation strategy	0.63	Less adaptive
Climate change impact	0.53	Less adaptive
Average	0.61	Less adaptive

Skills of climate change adaptation on Table 6 shows that the skills of respondents are less adaptive on climate change. This is because job training outside the agricultural sector is still rare. For the instructors themselves, such training would be useless because most farmers would still farm in any climatic conditions considering only that it is owned and can be done. In addition, the instructors did not have those duties and skills.

Similar conditions occurred in the rice management skills in uncertain weather. Most respondents are more often trained in pest control while training such as the use of planting calendars and planting rice varieties that are tolerant to climate change is almost never found. Pest control skills obtained by respondents through Integrated Pest Control Field School that are held well-scheduled in the houses or fields of the farmer group. This approach is quite successful in improving the skills of respondents in pest control.

Table 6 – Level of skills of climate change adaptation of the respondents

Skills of Climate Change Adaptation	Score	Category
Water management	0.62	Less adaptive
Plant management skills in uncertain weather	0.58	Less adaptive
Working outside the agricultural sector	0.52	Less adaptive
Average	0.57	Less adaptive

Water management skills of the respondents are also less adaptive to the climate change, although these skills are usually inherent in farmers because they have been taught for generations. For example, respondents in the lowlands reduce the irrigation water absorption into the soil by utilizing a barrel to coat the water line and control the excess water flow through open the floodgates. Farmers in the highlands distribute the water to all fields through pipelines and irrigation time splits. However, this study measures the skills of respondents from the frequency of respondents getting training in water management technology. This is because climate change demands more diverse water management skills, such as water storage technology as well as water drilling and suction to anticipate the decrease of water discharge from water sources, uncertain seasons, and extreme weather. In fact, the respondents are very rarely getting such training.

Application of climate change adaptation is not yet fully adaptive to the climate change in terms of job diversification as it appears in Table 7. Most of the respondents still make rice farming as the main source of income, even though farming is difficult to do. Soil management is also less adaptive because most respondents only observe the dryness of the rice fields, but almost never rest the land even though it can increase the nutrients and break the life cycle of the pest.

Table 7 – Level of application of climate change adaptation of the respondents

Application of Climate Change Adaptation	Score	Category
Plant management	0.60	Less adaptive
Soil management	0.62	Less adaptive
Water management	0.66	Less adaptive
Job diversification	0.54	Less adaptive
Average	0.61	Less adaptive

Although most respondents always maintain the water channels and use the water effectively and efficiently, the respondent's water management has not yet applied water storage and pumpinization technology because of cost consideration and geographical conditions. Some adaptation strategies for climate change are difficult for respondents to use, such as drilling wells during highland drought. In the medium-land, not all places are easy to drill because its underlying rocky layer and drilling permits are relatively difficult to obtain. The cost of groundwater drilling becomes expensive and adds to the high cost of rice field farming. In contrast, lowland respondents who are often sunken by the flood cannot use water pumps to reduce flooding due to the low geographical location and the existence of silting of the river due to Lapindo mudflow, so that rainwater and runoff water through the area cannot flow fast.

Most of the planting management of the respondents are also less adaptive because it tends to be conventional, such as planting simultaneously and monitoring plant growth. Meanwhile, planting climate-change-tolerant rice varieties, utilizing climate information, crop rotation, use of organic materials, and pest traps are still rare. This indicates that the adaptation activities undertaken by the respondents have been more revolved around the rice cultivation technology commonly used for generations in the management of the farming system, which is also incidentally in line with some adaptation strategies to climate change developed scientifically today.

Differences in Adaptive Capacity to Climate Change. Completing the description above, the adaptive capacity to climate change is further differentiated by agroecosystem zone. The test result of One Way Anova $F_{2,93} = 4.33$ at probability value 0.01 shows the difference of mean score of adaptive capacity to climate change of the farmers in all three agroecosystem zones. Table 8 shows the highest average adaptive capacity to climate change of the farmers

in medium-agroecosystem zones, followed by farmers in lowland agroecosystem zones, and farmers in highland agroecosystem zones. The average adaptive capacity to climate change of the respondents that is significantly different is the adaptive capacity to climate change of the respondents in highland agroecosystem zone, while for medium and lowland are not significantly different.

Table 8 – Differences of adaptive capacity to climate change between agroecosystem zones

Tukey HSD

Agroecosystem Zone	N	Subset for alpha = 0.05	
		1	2
Prigen Subdistrict	32	.5443	
Gempol Subdistrict	32		.6504
Purwosari Subdistrict	32		.6556
Sig.		1.000	.992

Means for groups in homogeneous subsets are displayed.

Basically, farmers will always instinctively adjust the management of rice farming with climatic conditions, because as the seasonal crops, rice is very dependent on the natural environment so it is more vulnerable to various risks (Kimura *et al.*, 2009). On the other hand, climate change is a global phenomenon that still becomes a new and complex issue to be understood for most people, so that its local impacts will be responded to the social, economic, and agricultural system characteristics of the rice farmers. Previous studies also explain that farmers have a fatalistic tendency toward the climate change (Dayour *et al.*, 2014; Cherif and Greenberg, 2013; Charles and Johann 2016; Akanda and Howlader, 2015). This condition affirms Rambo's statement (1985) that in addition to the few real things about the ecosystem that rural people understand, the conceptualization of the ecosystem also includes aspects that are now unbelievable. Thus, capacity building for climate change adaptation requires a flow of climate change information and communication from the experts to the farmers.

The lack of climate change adaptation skills of the respondents confirms that training and the experts' availability shortages may limit the ability of households, communities, or nations to implement adaptation options (Asante *et al.*, 2012). Thus, adaptation training for the farmers is needed. Communications approaches such as in pest control training are still relevant enough to be used because a place-based approach to discuss climate change impacts on specific areas, communities and locations promise more effective message delivery (Grossman, 2005; Thompson and Schweizer, 2008).

The application of climate change adaptation of respondents shows reactive adaptation measures, i.e. adaptations are implemented after the impacts of climate change have been perceived (Dolan *et al.*, 2001). This is a logical consequence of the level of knowledge, attitudes, and adaptation skills of the respondents, as the explanation of Lorenzoni *et al.* (2007) that the level of farmer involvement in climate change is related to basic knowledge, values, experience, and lifestyle and all of that is influenced by the breadth of the social level. Therefore, knowledge about climate needs to be seriously communicated to ensure the agribusiness sector recognizes the value of the effective adaptation to the risk of uncertain climate (Moser, 2010; Nisbet, 2009), which can instill positive understanding and attitudes toward the environment, citizen action competence, and in the sense of empowerment (Monroe *et al.*, 2000).

Differences in adaptive capacity to climate change of the respondents emphasized the importance of considering the suitability of adaptation strategies built or offered with the location and geographical conditions of rice farming. Some adaptation technologies may have to be sought for the substitution as they are quite difficult to be applied by the farmers in the highlands. In addition, the adaptation strategy support component should also be considered its availability to be easily accessible to them. This refers to the statement of Penalba *et al.*

(2012) that the awareness of climate change and its impact may not be transformed into actions for social and economic reasons.

This description of adaptive capacity to climate change is important because it not only explains the known and unknown climate change adaptation strategies but also how their attitudes, skills, and actions respond to the climate stimuli. Such information not only can open the minds of the government to the knowledge of the environment already possessed by the villagers that can complement the current knowledge of the scientists (Rambo, 1985), but also can be an input or evaluation of the suitability of climate change adaptation strategy implemented by the stakeholders.

CONCLUSION AND SUGGESTIONS

Rice farmers are less adaptive to the climate change, especially those in highland agroecosystem zones. It can be shown from the lack of knowledge and skills of specific issues related to the climate change, the attitude that tends to be fatalistic to the climate problems, as well as adaptation actions that tend to be reactive rather than anticipatory in responding to the climate change as a global phenomenon that impacts locally. This requires the flow of information through a variety of communication channels including the climate change adaptation training for farmers, as well as government policies that are able to encourage the availability of supporting components of climate change adaptation to the farmers. The implementation of both should refer to the results of the studies that extracts the determinant factors of adaptive capacity to climate change of the farmers including how the experience and what the farmers understand about the visible climate change manifestation.

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**INFLUENCE OF AGRICULTURAL TECHNOLOGY UTILIZATION
ON TECHNICAL EFFICIENCY OF COWPEA FARMERS IN NIGERIA:
EVIDENCE FROM PARAMETRIC ANALYSIS**

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ABSTRACT

This study examined the influence of agricultural technology utilization on the technical efficiency of cowpea farmers in Niger State, Nigeria. Data were sourced through the use of structured questionnaire administered to 286 respondents. Descriptive statistics, technology utilization index and stochastic frontier analysis models were used for the data analysis. The results revealed that 37.76% of the farmers operated on a low technology utilization range, while 22.38 and 39.86% operated on a moderate and high technology utilization range respectively. Agricultural technology utilization by cowpea farmers showed an inverse relationship with technical efficiency at 1% significant level. The distribution of technical efficiency levels for cowpea farmers indicated that technical efficiency indices ranged from 44% to 96%, with a mean efficiency score of 79%. Major challenges hindering farmers' technology utilization and technical efficiency were lack of credit (83.22%), low income (74.83%), risk of new technology (64.69%), complexity of technology (60.84%), little knowledge of equipment use (57.34%) and use of hired labour (53.15%). The study recommended increased extension support by the Niger State Agricultural and Mechanization Agency directed at cowpea farmers towards ensuring optimal and appropriate utilisation of agricultural technologies such as fertilizers and improved seeds, with the view to enhancing the technical efficiency of cowpea farmers.

KEY WORDS

Technology utilization, technical efficiency, cowpea, farmers.

In spite of contributing 23.1% of the Gross Domestic Product (GDP) of Nigeria's economy (Federal Ministry of Budget and National Planning, 2017) the agriculture sector is still underdeveloped and unexplored. This may partly not be unconnected with low technology absorption, sub-optimal production efficiency and low productivity, under-utilisation of available natural resources, the non-inclusive and non-transformative nature of growth witnessed within the sector. The sector is also currently dominated by the crop sub-sector, which accounts for about 85% of the sector, covering, cash and arable crops, including cowpea. Cowpea is a tropical annual herbaceous legume grown majorly in Nigeria and it provides income and employment opportunities for most people in the rural communities of the country. Nigeria is the largest producer of cowpea in the world, as it produces an estimated 2.17 million tons annually (Food and Agriculture Organization, 2014).

However, cowpea efficiency in Nigeria has been sub-optimal, with producers' technical efficiencies below the frontier in most parts of the country (Sofoluwe and Kareem, 2011; Egbetokun and Ajijola, 2008; Abba, 2016 and Abdui, Makama and Mika `il, 2013). This development may not be unconnected to numerous factors, including low agricultural technology uptake. For instance, the Federal Ministry of Agriculture and Rural Development (2011) revealed that average fertilizer use in Nigeria is just 13kg/hectare compared to a World average of 100kg/hectare and 150kg/hectare for Asia, while only 5% could access improved seeds compared to 25% in East Africa and 60 % in Asia. In a related development, Nigeria could only record 10 tractors per 100 hectares compared to Indonesia with 241 tractors per 100 hectare.

Agricultural technology utilization refers to the adoption of new agricultural innovations for the increased and efficient improvement of a crop or farming process. Consequently, the importance of agricultural technology utilization cannot be overemphasized. Logically, farmers with poor allocation and low utilization of production technologies may not expect improved level of productivity or output. This thus confirms the linkage between technology utilisation and efficiency. According to Piya *et al.* (2012), this link can be related to the production decisions of the households when they produce either for subsistence or for profit motive. For instance, a subsistent farmer who is satisfied with providing for the family may not bother to utilize a technology or improve on their level of efficiency, while a commercial farmer who is producing on a large scale and whose aim is to increase output as well as outwit competitors will do everything possible to utilize technologies and enhance efficiency level. Numerous promising agricultural technologies which have the potentials to increase the productivity and livelihood of farming households have been churned out by Research Institutes in Nigeria and across the globe. However, the potentials of these technologies depend among others on the capacities of individual farm households to utilize them efficiently. This study therefore identified the types and technologies utilised by cowpea farmers in the study area, determined the level of technology utilisation and ascertained the influence of the technologies utilised on cowpea farmers' technical efficiency.

Theories of Technology Utilisation and Efficiency. Agricultural technological utilisation is hinged on theoretical approaches supporting the understanding of the psychology of users' acceptance and use of technologies. Key among these theories are the theories of reasoned action, technology acceptance model, planned behaviour, the combined theory of planned behaviour and technology acceptance and acceptance and use of technology theory. The theory of reasoned action states that an individual's behaviour is determined by one's intention to perform the behaviour, and this intention is influenced jointly by the individual's attitude and subjective norm. On the other hand, the theory of acceptance stipulates that acceptance of any technology is determined by the perceived usefulness and perceived ease of use, while, the theory of planned behaviour is an extension of the reasoned action, given the inclusion of perceived behavioral control as a factor which influence human intention (Dillon and Morris, 1996). Thus, perceived behavioral control is determined by the availability of skills, resources and opportunity to achieve outcomes. The theory of acceptance and use of technologies is based on users' intentions and information system. The theory is based on four constructs, namely; performance expectancy, effort expectancy, social influence and facilitating conditions. The first three are direct determinants of usage intention and behavior and the fourth is a direct determinant of user behavior.

Evidence from literature suggests that Debreu (1951), Koopmans (1951) and Farrell (1957) pioneered the work on efficiency. The novel contributions of Farrell led to the decomposition of efficiency into technical, allocative and economic efficiencies. According to Farrell, technical efficiency relates to the capacity to attain maximum level of output from a given level of inputs. Allocative efficiency relates to the ability to use inputs in optimal proportion at unique prices and available level of technology. Economic efficiency on the other hand is a product of the technical and allocative efficiencies and relates to the concept productivity, performance, quality and profit. Also, the trend in efficiency estimation has gone from double to single model estimation, using either the parametric and or the non-parametric approaches. However, recent insight defined efficiency in terms of optimal resource allocation (Norton, Alwang and Masters, 2015). This study therefore focuses on technical efficiency of cowpea farmers using the parametric estimation.

Relationship between Technology Utilization and Efficiency. According to Ibeziako (2017), agricultural growth depends not just on technology utilization, but also on the level of efficiency. Ali *et al.* (1989) also established that farmers find themselves in disequilibrium because of continuously generated new technology and the difference in input and output prices. According to the source, farmers' cope-up strategy to these disequilibria differs with each other and thus, may result into different levels of efficiency. Ibeziako (2017) further noted that production locations and scale of operations of technologies have correlations with efficiency.

METHODS OF RESEARCH

The study was carried out in Niger State, situated in the Guinea Savannah vegetation zone of Nigeria. It is located within Latitudes $8^{\circ} 11' N$ and $11^{\circ} 20' N$ and Longitudes $4^{\circ} 30' E$ and $7^{\circ} 20' E$. Niger is bordered to the north by Zamfara State, to the northwest by Kebbi State, to the south by Kogi State, to southwest by Kwara State; while Kaduna State and Federal Capital Territory borders the State to northwest and southwest respectively. The State also shares a common international boundary with the Republic of Benin at Babanna in Borgu Local Government Area (LGA). Niger State consists of twenty five Local Government Areas (LGAs) grouped into three administrative Zones, with the zones having 8, 8 and 9 LGAs respectively. This study was conducted in Zones 1 and 3 of Niger State. Agriculture is predominant in the state, with cowpea, rice, yam, sugar cane, maize and millet, being the major crops grown.

Sampling Procedure and Sample Size. A multi-stage sampling technique was used in selecting respondents for this study. The first stage was a purposive selection of Zones 1 and 3 out the three zones (1, 2 and 3) in the State given preponderance of cowpea farmers Niger State Agricultural Mechanization and Development Agency (NAMDA), (2016). The second stage was a selection of two LGAs from each of the two zones selected. The third stage entailed a random selection of two villages from each of the selected LGA, giving a total of eight villages. In the fourth stage, sampling of farm households in each village was determined proportionately. Sample selection was based on the cowpea farmers' frame using the Yamane sample section model at 5 percent precision level.

Data collection and Analysis. The data for the study were generated through primary sources and were collected with the use of structured questionnaire designed in line with the research objectives. This was administered to the respondents with the assistance of trained enumerators. Descriptive statistics such as frequency, distribution tables, percentages and mean were used to identify the technologies utilized and identify the challenges hindering farmers' technology utilization. To determine the level of technology utilization in the study area, inference was drawn to derive the technology utilization index from the study of Mabe *et al.* (2012) as modified by Nakuja *et al.* (2012) on the adaptive capacities of farmers to climate change adaptation strategies and their effects on rice production in the Northern Region of Ghana. With respect to data collection on the model, respondents were asked to indicate their level of utilization of commonly used technologies available in the study area. The seven common technologies were improved land preparation, use of improved seed, pre-sowing, seed dressing, fertilizer application, agrochemical usage, utilization of improved planting method and post-harvest storage. These were scored as:

- Use of improved land preparation= 1; none-usage = 0;
- Use of improved seed =1; none-usage = 0;
- Use of Pre-sowing seed dressing = 1; none-usage= 0;
- Use of 2bags/ha 15kgN NPK(15:15:15) or 2bags/ha 30kg single superphosphate =2; use of 1 bag =1; none-usage= 0;
- Use of agrochemical = 1; none-usage = 0;
- Improved technology of planting on ridges or flat beds, recommended spacing based on variety and sowing 2 seeds/hole at 2.5 cm - 5 cm = 3, Partial utilization of improved planting method =1.5; none-usage =0
- Post-harvest storage using air tight containers, use of jute or polypropylene bags with polythene inner liners or triple bagging or the use of chemical =1; none-usage =0

The average level of technology utilization of an *i*th farmer to *j*th technology was then calculated as shown in equation (1):

$$\text{Average Technology Utilization Scale} = \frac{ILP_{ij} + ISV_{ij} + PS_{ij} + FA_{ij} + AP_{ij} + PM_{ij} + PH_{ij}}{N_A} \quad (2)$$

Where: ILPij = Improved land preparation technology; ISVij = Improved seed variety; PSij = Pre-sowing seed dressing; FAij = Fertilizer application; APij = Agrochemicals application; PMij = Planting method adopted; PHij = Post-harvest storage technology adopted; NA = Number of total recommended technologies.

From the above equation, the sum of technologies utilized divided by the number of total recommended technologies for each farmer was then calculated to derive the technology utilization index using equation (2).

$$\frac{\sum TU}{NA} \quad (2)$$

Where: $\sum TU$ = Sum of technologies utilized; NA = Number of total recommended technologies.

Based on the generated technology utilization index result, farmers were then categorized, as follows 0 < 0.33 - Low technology utilization level, 0.33 < 0.66 - Moderate technology utilisation level while a range of 0.66 ≤ 1.00 - High level of technology utilization. Modifying the ranking, table 1 summarizes how this was categorized for this study.

Table 1 – Level of technology utilization by respondents

Level of technology utilization	Range of technology utilization level
Low technology utilization	0 - 0.32
Moderate technology utilization	0.33- 0.65
High technology utilization	0.66 ≤ 1.00

Source: Modified from Mabe et al., (2012) and Nakuja et al., (2012).

The effect of technology utilization on cowpea farmers efficiencies were determined using the inefficiency function specified thus:

$$TE = \delta_0 + \delta_1 Z_1 + \delta_2 Z_2 + \delta_3 Z_3 + \delta_4 Z_4 + \delta_5 Z_5 + \delta_6 Z_6 + \dots \delta_{23} Z_{22} \quad (3)$$

Where:

- Z₁ = Household size (Number of persons in the HH);
- Z₂ = Gender of HH head (Male =1, Female =0);
- Z₃ = Marital Status (Single Yes =1, No =0);
- Z₄ = Marital Status (Married Yes =1, No =0);
- Z₅ = Marital Status (Divorced Yes =1, No =0);
- Z₆ = Age of decision maker on technology utilization (Years);
- Z₇ = Gender of decision maker on technology utilization (Male =1, Female =0);
- Z₈ = Years of farming experience (Number of years);
- Z₉ = Educational level (Number of years spent in formal school);
- Z₁₀ = Farm size (Hectares);
- Z₁₁ = Employment (Number of those employed in the HH);
- Z₁₂ = Household Composition -Adult male (Number);
- Z₁₃ = Household Composition -Adult female (Number);
- Z₁₄ = Household Composition -Children (Number);
- Z₁₅ = Number of extension visits (Number);
- Z₁₆ = Membership of Cooperative society (Yes =1, No =0);
- Z₁₇ = Number of languages spoken (Number);
- Z₁₈ = House ownership (Male =1, Female =0);
- Z₁₉ = Income of Household Head (Naira);
- Z₂₀ = Access to Credit (Yes =1, No =0);
- Z₂₁ = Access to insurance (Yes =1, No =0);
- Z₂₂ = Technology Utilization (Index);
- δ₀ = Constant;
- δ₁ - δ₂₂ = Coefficients to be estimated.

RESULTS AND DISCUSSION

Technologies utilized by Respondents. The main technologies utilized by the respondents were improved land preparation technique, improved seed, pre-sowing, seed dressing, fertilizer application, agrochemical application, improved planting method and post-harvest storage. The results showed that only 47.90% of the respondents utilized improved land preparation technology. This implies that 52.10% either used family labour or hired labour for their land preparation. Most (73.78%) of the farmers did not plant improved seeds, 69.23% did not use the pre-sowing seed dressing technology and 59.79% did not apply fertilizer. The Federal Ministry of Agriculture and Rural Development (2011) established that the level of technology utilisation in Nigeria were far lower than global best practice. However, 64.34% of the respondents applied agrochemicals, 57.69% utilized improved planting method and 100% utilized the post-harvest storage technologies of either air tight containers, use of jute/polypropylene bags with polythene inner liners or triple bagging or the use of chemicals. The technologies utilized by the respondents are as shown in Table 2.

Table 2 – Technologies utilized by the respondents

TECHNOLOGIES UTILISED	FREQUENCY	PERCENTAGE
Improved Land Preparation technique		
Yes	137	47.90
No	149	52.10
Improved Seed		
Yes	75	26.22
No	211	73.78
Pre-Sowing seed dressing		
Yes	88	30.77
No	198	69.23
Fertilizer Application		
Recommended Level	27	9.44
Partial	88	30.77
None	171	59.79
Agrochemical Application		
Yes	184	64.34
No	102	35.66
Improved Planting Methods		
Recommended Level	165	57.69
Partial	120	41.96
None	1	0.35
Post harvest storage		
Yes	286	100
No	0	0

Source: Field survey, 2016.

Level of technology utilization. To ascertain the level of technology utilization by respondents, the range of technologies utilized were categorized into three, with a rating of 0 - 0.32 considered as low, 0.33 - 0.65 is considered moderate and $0.66 \leq 1.00$ is considered high. The results, as detailed in Table 3 shows that 39.86% of the farmers operated at high technology utilization level, 22.38% on moderate level, while 37.76% operated on low technology utilization level. The implication of the result is that 60.44% (sum of the low and moderate) which is a considerable percentage of the sampled population are either not utilizing the available technologies or are not utilizing them adequately. The respondent's level of technology utilization is as shown in table 3.

Table 3 – Distribution of respondents according to level of technology utilization

LEVEL OF TECHNOLOGY UTILIZATION	FREQUENCY	PERCENTAGE	REMARK
0 - 0.32	108	37.76	Low
0.33 - 0.65	64	22.38	Moderate
0.66 ≤ 1.00	114	39.86	High

Source: Computation from survey data, 2016.

Effect of Technology Utilization on Farmers' Efficiency. The estimated coefficients of the Stochastic Frontier Model as presented in Table 4 shows that the estimated sigma-square (σ^2) which was 0.19 was significant at 1% level of probability. The gamma estimate of 0.99 was significant at 1% level of probability. This shows that there was 99% variation in output resulting from technical inefficiencies of the farmers. The estimate of the parameters of the stochastic production frontier indicated that the coefficients of all the significant factors included in the efficiency function were positive, implying that increase in the use of any of the factors led to increase in technology utilization, all things being equal.

Specifically, the input with respect to farm size, hired labour, agrochemicals and seed were all positive and statistically significant at 1% level of probability implying that an increase of 1% in farm size, hired labour, agrochemicals and seed resulted in an increase in output by 0.753%, 0.013%, 0.049% and 0.043% respectively. This aligns with the studies of Bekele (2003), Boris *et al*, (1997), Nyagaka *et al*, (2010) and Agwu (2004) that these variables have a potential of increasing the farmers' output.

Table 4 – Effect technology utilization on respondents' technical efficiency

Variables	Parameter	Coefficient	Standard-error	t-ratio
Efficiency model				
Constant	δ_0	7.669717	0.596637	12.85***
Farm size	δ_1	0.753937	0.018543	40.66***
Fertilizer	δ_2	0.001615	0.001688	0.96
Family labour	δ_3	0.004146	0.002880	1.44
Hired labour	δ_4	0.013527	0.001918	7.05***
Agrochemicals	δ_5	0.049946	0.006792	7.35***
Capital inputs	δ_6	0.148705	0.085850	1.73
Seed	δ_7	0.043970	0.016770	2.62***
Inefficiency model				
Constant	δ_0	2.391503	0.396236	6.04***
Household size	δ_1	-0.024572	0.128653	-0.19
Gender of HH head	δ_2	0.471671	0.183052	2.58**
Marital status – single	δ_3	0.432319	0.100134	4.32***
Marital status – married	δ_4	-0.316448	0.088266	-3.59***
Marital status – divorced	δ_5	0.408890	0.101565	4.03***
Age of decision maker on technology utilization	δ_6	-0.004401	0.004860	-0.91
Gender of decision maker on technology utilization	δ_7	-0.736329	0.113748	-6.47***
Years of farming experience	δ_8	0.005219	0.007013	0.74
Educational level	δ_9	0.011691	0.006355	1.84*
Farm size	δ_{10}	-0.149852	0.060949	-2.46**
Employment	δ_{11}	-0.096400	0.025215	-3.82***
HH Composition – Adult male	δ_{12}	-0.025457	0.131227	-0.19
HH Composition – Adult female	δ_{13}	0.131568	0.131523	1.00
HH Composition – Children	δ_{14}	0.050560	0.128153	0.39
Number of extension visits per production season	δ_{15}	-0.190364	0.046078	-4.13***
Membership of Cooperative society	δ_{16}	-0.087049	0.093143	-0.93
Number of languages spoken	δ_{17}	-0.079570	0.050572	-1.57
House ownership	δ_{18}	-0.654500	0.131643	-4.97***
Income of Household Head	δ_{19}	-0.000016	0.000002	-9.62***
Access to Credit	δ_{20}	-0.919833	0.144010	-6.39***
Access to insurance	δ_{21}	-0.113649	0.125463	-0.91
Technology Utilization	δ_{22}	0.459189	0.140217	3.27***
Sigma-squared	σ^2	0.191528	0.029841	6.42***
Gamma	Γ	0.996769	0.001083	920.13***

Log likelihood function = 149.55944*** LR test of the one-sided error = 294.69447***

*** Significant at 1%, ** significant at 5%, * significant at 10% Source: Computation from survey data, 2016

With respect to the inefficiency model, gender of household head, marital status, gender of decision maker on technology utilization, educational level, farm size, employment, number of extension visits per production season, house ownership, income of household head, access to credit and the level of technology utilization were the only variables that contributed significantly to the explanation of inefficiency measures.

Gender of household head was positive with coefficient of 0.471 which was statistically significant at 5% level of probability. The implication is that gender of household does not increase efficiency. Farm size was negative with coefficient of -0.149 which was also statistically significant at 5%. The implication is that farm size increase efficiency. This is in line with Boris *et al.* (1997) and Tanko *et al.* (2008) that reported that farm size has a significant influence on farmers' efficiency but in contrast with the study of Akinwumi *et al.* (1996) that reported that farm size has no influence on farmers' efficiencies. Educational level was positive and statistically significant at 10% with a coefficient of 0.011. This implies that educational level does not increase efficiency. This is not in agreement with the studies of Kimenyi (2001), Mendola (2007) and Okoye *et al.* (2006) that reported that education promotes farmers' efficiency.

The coefficients of being single and divorce were positive with coefficients 0.432 and 0.408 respectively and significant at 1% level of probability while being married was negative with coefficient -0.316 and also significant at 1% level of probability. This implies that marriage increases efficiency. This may be as a result of the advantage of the joint-force of the married people in acquiring agricultural information and pulling funds together to utilize technologies as against the single and divorced farmers. Gender of decision maker on technology utilization, employment, number of extension visits, house ownership, income of household head and access to credit were negative with coefficients of -0.096, -0.190, -0.654, -0.000 and -0.919 respectively and were all statistically significant at 1% level of probability level. This implies that these variables increase efficiency. This agrees with the studies of Katungi (2006), Habtemariam (2004), Boris *et al.* (1997), Kidane (2001), Getahun (2004), Mbanasor *et al.* (2008), David (2005) and Okoye *et al.* (2006), which established that these variables promote farmers' efficiencies. Technology utilization was positive with coefficients 0.459 and was statistically significant at 1% level of probability, implying that technology utilization decreases efficiency. This could be as result of inadequate and wrong utilization of the technologies by the farmers, probably due to inadequate knowledge. The estimated coefficients of the Stochastic Frontier Model are presented in Table 4.

The frequency distribution of technical efficiency levels for cowpea farmers in the study area is presented in Table 5. The mean technical efficiency was 0.791, which suggested that on the average, the observed output was 21% less than the optimum output. This implies that cowpea farmers in the study area were technically efficient (0.791) and were 21% less from the maximum possible level due to technical inefficiency. This can be improved on by utilizing best practices of existing technologies. The result indicates that technical efficiency indices range from 44% to 96% for the study area, with an average of 79%.

Table 5 – Technical efficiency distribution of Cowpea Farmers in Niger State

Technical Efficiency Score	Frequency	Percentage
0.31 – 0.40	47	16.43
0.41 – 0.50	1	0.35
0.51 – 0.60	11	3.85
0.61 – 0.70	31	10.84
0.71 – 0.80	15	5.24
0.81 – 0.90	38	13.29
0.91 – 1.00	143	50.00
Sample size	286	100.00
Minimum score	0.445	
Maximum score	0.9622	
Mean score	0.791	

Source: Computation from survey data, 2016

Challenges hindering farmer's technology utilization and technical efficiency. The main challenges hindering cowpea farmers' technology utilization and technical efficiency were complexity of technology (60.84%), lack of credit (83.22%), low income (74.83%), use of hired labour (74.83%), risk of new technology (64.69%) and little knowledge of equipment use (57.34%) (Table 6). This is in agreement with the study of Feder *et al.* (1985) that reported constraint to credit as one of the barriers to technology utilization in developing countries and the study of Baidu-forson *et al.* (1995) which established that farmers' perception played a significant effect on their level of technology utilization.

Table 6 – Challenges hindering farmer's technology utilization and technical efficiency

CHALLENGES	FREQUENCY	PERCENTAGE
Risk of new technology	185	64.69
Complexity of technology	174	60.84
Doubts in Profitability	44	15.38
Lack of credit	238	83.22
Low income	214	74.83
Low accessibility	90	31.70
Language barrier	30	10.49
Insufficient training	50	17.48
Societal factors	65	22.73
Religious inclination	47	16.43
Cultural inclination	68	23.78
Little knowledge of equipment usage	164	57.34
Little or no experience in cowpea farming	77	26.92
Doubts in efficiency of equipment	113	39.51
Use of hired labour	152	53.15
Large size of land cultivated	128	44.76

Source: Computation from survey data, 2016.

CONCLUSION AND RECOMMENDATIONS

Arising from the outcome of the study, the study concluded that the level of technology utilisation among cowpea farmers in the study area was low and that utilization of agricultural technologies had a negative influence of cowpea farmers' efficiency. Consequently, the study recommended as follows:

- There is the need for increased extension support by the Niger State Agriculture and Mechanization Agency directed at cowpea farmers towards ensuring appropriate utilisation of agricultural technologies such as fertilizers, improved seeds;
- It has become imperative for NAMDA to facilitate access of cowpea farmers to agro-input sources in order to ensure optimal utilisation of these inputs.
- There is the need to shore of cowpea farmers' efficiency through continuous training and technical support on efficient production resource allocation.
- To further enhance efficiency on cowpea farmers, supportive credit policies should be made by the State Ministry of Agriculture to facilitate increased access to credit at interest rates favourable to the farmers.

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LEVERAGE IMPACTS ON AGRO-INDUSTRIAL COMPANY INVESTMENTS

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ABSTRACT

Agro-industry has an important role in Indonesian economic growth. One of the crucial constraints in agro-industry investments in developing country is due to limited access to investment fund. This research was aimed to analyze the impacts of leverage on the agro-industrial company investments. The research used financial report data of the manufacturing industries on agro-industrial bases registered in Indonesian Stock-Exchange from 2007 to 2016. The data were analyzed using panel data regression analysis. The results of the research showed that the leverage influenced negatively on the agro-industrial companies. Cash flow has a negative impact on the company investments, which shows the existence of financial constraints when the company decide to invest.

KEY WORDS

Agroindustry, investment, leverage, Tobin-Q.

Agro-industry has an important role in Indonesian economic growth. Based on the Indonesian Republic Regulation number 14, 2015 concerning National Industry Development Master Plan in year 2015-203, the upstream agro-industry is one of the government's ten prioritized industries (Ministry of Industry 2015). Agro-industry contributions are relatively dominant to manufacturing industries as a whole and to national economic growth. The growth of agro-industry sector until the fourth quarter 2015 reached 5.82 percent. The contribution of agro-industry sector to national GDP up to the fourth quarter 2015 was 8.26 percent, and its contribution to non-oil processing industries was 45.42 percent. Furthermore, up to the fourth quarter 2015 agro-industry managed to employ 1.612 workers. When seen from domestic investments (PMDN), this sector until the fourth quarter 2015 reached 32.25 trillion rupiah with 1076 industry business permits, while from the foreign investments (PMA) it reached US\$ 10.15 billion with 1634 industrial business permits (Ministry of Industry 2016).

In line with that, the policy of increased export, investments, and tax incentive in agro-industry sector has reduced poverty level and improved household income distribution (Susilowati, 2007). Agro-industry is one of the development policies that can trigger national economic sector and enhance economic growth. The agro-industry development policies are, among others, policy on investments, technology and agro-industry location that needs to be primarily considered (Yusdja and Iqbal 2002). One of the crucial constraints in agro-industry is investments in the field of agro-industry has not developed yet, which is due to limited in-country investment fund. Besides, the financial institution also still applies interest preference. Investment decision is an important factor in the company management because it will give the company profitability and it will influence the company value. (Karuna 2007, Laksmana dan Yang 2015).

The company investment fund can come from the company internal sources as well as from the external sources. If the fund from the internal sector is considered inadequate, the company can get investment fund from external sources, such as loan or *leverage*. As can be seen from the research done by Anwar and Sun (2014), Aivazian *et al.* (2005), and Guney *et al.* (2011), they say that leverage can influence the investment decision. The importance of *leverage* as an investments fund of an agro-industry company is that it can make the

company develop and grow better and also improve economy. Therefore, it is important to carry out further research about the effects of *leverage* on the investments of agro-industry companies in Indonesia.

LITERATURE REVIEW

According to Manguwidjaja *et al.* (2001) and Turniasih and Dewi (2016) Agroindustry is an inter-disciplines activity that utilizes agriculture as a natural resource for industrial activities which include: industry of agricultural machinery and facilities; processing industry of agricultural products; and industry of agricultural services. In line with it, according to the Ministry of Finance (2014) the products of agricultural bases are coffee, cocoa, tobacco, paper and paper by-products, vegetable oil, furniture, milk, fruits, and sugar.

Objectively, conflict between shareholders and managers can create agency problems. Agency problems appear when the agents (management) work for principals (shareholders). Agency cost happens when the managers do not try to maximize the company value, and the shareholders charge a fee for monitoring the managers and curb their actions (Brealey *et al.* 2011). The *Agency* theory was established based on seven basic assumptions: personal interest, goal conflict, limited rationality, asymmetric information, superior efficiency, risk evasion, and information as commodity (Eisenhardt, 1989).

Aivazian *et al.* (2005) researched the effects of financial leverage on the company investments using data obtained from the financial information in industrial companies in Canada. The results showed that leverage had a negative influence on the company investments. The leverage influence became stronger on the company whose growth opportunities were lower compared to the company whose growth opportunities were higher.

Firth *et al.* (2012) carried out research on the cash flow investments with financing channel in a public company in China. The result showed that investments had a relation with the cash flow level. This result strengthened the research result by Cleary *et al.* (2007) for the companies in the US and by Guariglia and Yang (2016) for the companies in Britain. According to Firth *et al.* (2012) the existence of leverage, besides the shareholders, debt-holders will also monitor the performance of the company and the company business decision, including the company investment decision.

Lang *et al.* (1996) conducted research in the companies in Canada. The results of the research showed that leverage had significant positive impacts on the company investments. The negative impacts of leverage became stronger on the companies with low growth opportunities. Ahn *et al.* (2006) carried out research on association between leverage and investments in diversified companies. The samples used were obtained from all companies in Compustat tapes during the period 1982 until 1997. The results of the research showed that leverage had a negative impact on the company investments. The impact became stronger on the segment of Q high value compared to Q low value, and significantly bigger on the non-core segments compared to the core segments.

Ajide (2017) researched the influence of institutional quality and specific factors of the company on the non-finance company investments in Nigeria during the period 2002 until 2012. The result of the research showed that regulator quality, corruption, political stability, and control from corruption did not significantly influence the decision of company investments in Nigeria, while the company specific factor influenced the company investments in Nigeria. Significant cash flow had a positive impact on investments, while Tobin Q, Stock of Liq. Asset, and Sales had a negative impact. Leverage, however, did not give any impact on the company investments.

The objective of the research was to find out the effects of leverage on the investments decision in a manufacturing company of agro-industrial bases in Indonesia. Besides, the research also tried to find out the sensitivity of the company's growth rate towards leverage impacts on agro-industry company investments.

METHODS OF RESEARCH

Data used in this research were obtained from the financial reports of 17 manufacturing companies of agro-industrial bases listed in Indonesian Stock Exchange (BEI) from 2007 to 2016. The data obtained would be analyzed with descriptive statistics and panel data regression analysis. The panel data regression analysis was used to see the impacts of leverage on agro-industry companies in Indonesia. the dependent variable in this research was investment variable (I), while the independent variables were cash flow (CF), Tobin Q (TQ), leverage (Lev), and sales (Sales).

$$I_{it} = \gamma_0 + \gamma_1 CF_{it} + \gamma_2 TQ_{it-1} + \gamma_3 Lev_{it-1} + \gamma_4 Sales_{it} + \varepsilon_{it}$$

Table 1 – Measuring the variables

Variable	Notes
I	Net investments (I)/ lag from net fixed asset (K)
CF	Earnings before extraordinary items plus depreciation and amortization divided from the book value from the previous year asset
TQ	{Total liability+market value from ordinary shares+ estimation of market value in preferred shares} / book value of the total asset
LEV	Total liability/total asset
SALES	Net sales (Sales)/ lag from fixed asset (K)
DTQ	Dummy variables equals 1 if Tobin's Q >1, and 0 for the opposite

RESULTS AND DISCUSSION

Descriptive Statistics. Descriptive analysis was carried out in 17 manufacturing companies of agro-industrial bases listed in Indonesian Stock Exchange (BEI) from 2007 to 2016. The results of the descriptive statistic analysis are presented in Table 2.

Table 2 – Descriptive Statistics

	I	CF	TQ	LEV	SALES
Mean	0.137548	0.262745	2.105823	0.484742	4.663675
Median	0.099151	0.053489	1.014452	0.504532	3.858885
Maximum	0.995376	3.584552	18.64041	0.893964	16.70822
Minimum	-0.138492	-1.174489	0.261931	0.071094	0.853344
Std. Dev.	0.176269	0.657566	3.283953	0.172361	3.234793

Table 2 shows that investment average of agro-industry companies from 2007 to 2016 is 0.1375 with deviation standard value 0.1763. The average value of cash flow is 0.2627 with deviation standard value 0.6576. Then the value of average Tobin Q is 2.1058 with deviation standard value 3.2840. The average leverage value of a company sample from 2007 to 2016 is 0.4847 with deviation standard value 0.1724. Furthermore, the sales average value is 4.6637 with deviation standard value 3.2348.

The Regression Analysis of Leverage Impacts on Agro-Industry Company Investments. In this research we used panel data regression analysis to see the impacts of leverage on agro-industry company investments listed in Indonesian Stock Exchange (BEI) from 2007 to 2016. In the panel data regression analysis there are three regression model approaches, namely pool least square (PLS), fixed effect model (FEM), and random effect model (REM). After Chow test and Hausman test were tested, based on the results obtained as can be seen in Table 3, it can be determined that random effect model (REM) is the regression model chosen for further analysis. The R-Square value that shows goodness of fit obtained is 0.1773.

Based on table 3, it can be seen that the variables of cash flow, Tobin Q, leverage, and sales have significant effects on the dependent variable of agro-industry company investments. The leverage variable has a significant negative impact on agro-industry company investments in Indonesia, with a coefficient value -0.2254. The negative impact of

leverage shows that the higher the leverage, the the company management are become more selective on their investments decision. This result is in line with the research conducted by Ahn *et al.* (2006), Aivazian (2003), Lang *et al.* (1996), Jensen (1986), Stulz (1990), and Grossman and Hart (1982). The presence of leverage makes the debtholder take parts in agency conflict between management and shareholders, and it functions to take control of management in making investments decision. Tobin Q, which becomes the proxy of the company growth or company opportunity to gets access of funding from capital markets. Tobin Q has a positive impact on agro-industry company investments in Indonesia with coefficient value 0.0141. The research result we obtain is in line with that by Chen (2014) and Aivazian *et al.* (2005), which shows that when Tobin Q increases, the company investments will also increase. The variable Sales as a control variable has a significant negative impact on the agro-industry company investments in Indonesia with a coefficient value 0.0096. This result is in line with that of the previous research carried out by Aivazian *et al.* (2005), Lang *et al.* (1996), and Prasetyantoko (2007), which shows that when sales increases, the company investments will also increase.

Table 3 – The effects of leverage on agro-industry company investments

Variable	PLS	FEM	REM
Intercept	0.163665*** (3.548682)	0.275699*** (3.449907)	0.206767*** (3.418058)
CF	-0.125070*** (-5.462193)	-0.123535*** (-4.244406)	-0.131116*** (-5.215528)
TQ	0.011671*** (2.830909)	0.024275** (2.158832)	0.014115** (2.401584)
Lev	-0.108626 (-1.381850)	-0.446455*** (-3.192297)	-0.225365** (-2.244232)
Sales	0.007467* (1.681321)	0.012780* (1.842588)	0.009596* (1.783592)
Chow test	0.0003		
Hausman test	0.1499		
R-Square	0.180070	0.399097	0.177263
Adjusted R-squared	0.157910	0.308051	0.155027
Durbin-Watson stat	1.648477	2.140904	1.915035

*** Significant on α 1%, ** Significant on α 5%, * Significant on α 10%.

From the analysis results above, it can be concluded that cash flow has a positive impact on agro-industry company investments in Indonesia with a coefficient value -0.1311. This result is different from some literatures such as Ajide (2017) Ahn *et al.* (2006), Chen *et al.* (2013) and Aivazian *et al.* (2005). This is probably because of a financial constraint in the company when carrying out the company investments. This is in line with the result research conducted by Prasetyantoko (2007), in which it is concluded that manufacturing companies in Indonesia have financial constraints indicated by the negative relation between cash flow and investments.

The Effects of Company's Growth Rate on the Relation between Leverage and Company Investments. According to Aivazian *et al.* (2005) the company growth rate has given the leverage sensitivity a positive impact on the company investments. The company growth that is represented by Tobin Q is the company opportunity to get access to good financing from capital markets. As for the company growth rate variable, the variable dummy (DTQ) is used, which means 1 if Tobin's Q value is >1, and 0 if Tobin's Q value is <1. The interaction variable between DTQ and Lev is used to see the role of company's growth rate in leverage on the agro-industry company investments in Indonesia. The following is its regression model.

$$I_{it} = \gamma_0 + \gamma_1 I_{it-1} + \gamma_2 CF_{it} + \gamma_3 TQ_{it-1} + \gamma_4 Lev_{it-1} + \gamma_5 Sales_{it} + \gamma_6 DTQ_{it-1} + \gamma_7 DTQ_{it-1} * Lev_{it-1} + \varepsilon_{it}$$

In the analysis of company's growth rate of the leverage impacts on the company investments, panel data regression analysis is used. The test results of Chow test and Hausman test show that REM model is the chosen one. The R-Square value shows that the goodness of fit obtained is 0.1802.

Table 4 – The effects of company's growth rate in leverage on the company investments

Variable	PLS	FEM	REM
Intercept	0.183598*** (3.136137)	0.306645*** (3.562464)	0.229311*** (3.378595)
CF	-0.122112*** (-5.264648)	-0.122245*** (-4.178999)	-0.129557*** (-5.177212)
TQ	0.008351 (1.463514)	0.025483** (2.100944)	0.013171* (1.920912)
Lev	-0.147369 (-1.481042)	-0.512616*** (-3.273613)	-0.262357** (-2.290262)
Sales	0.007471* (1.666559)	0.012486* (1.785641)	0.009220* (1.730225)
DTQ	-0.052041 (-0.643907)	-0.079495 (-0.918755)	-0.061924 (-0.778676)
DTQ*Lev	0.168189 (0.934928)	0.187758 (0.988287)	0.137863 (0.784058)
Chow test	0.0003		
Hausman test	0.1088		
R-Square	0.185711	0.403665	0.180227
Adjusted R-squared	0.152247	0.302747	0.146537
Durbin-Watson stat	1.642867	2.141967	1.887944

*** Significant on a 1%, ** Significant on a 5%, * Significant on a 10%.

Based on Table 4, it can be seen that the results do now show that the level of company's growth rate (DTQ) has impacts on company investments. The variable Tobin Q as a proxy of company growth rate has a significant positive impact on the company investments. However, after the variable is made into dummy by separating samples that have Tobin Q value above 1 and below 1, dummy Tobin Q does not give any impact on the company investments. This shows that the level of company's growth rate does not affect the company investments.

The regression analysis results show that the interaction variable DTQ*Lev does not give any impact on investments, which means that the level of company's growth rate does not give the leverage sensitivity any impacts on the company investments. This result is different from the research carried out by Aivazian *et al.* (2005) and Ahn *et al.* (2006), which shows that the interaction variable of the level of company's growth rate with leverage has affected significantly on the company investments. The research results of Aivazian *et al.* (2005) show that the level of company's growth rate strengthens the leverage impacts on the company investments. The research result of Ahn *et al.* (2006), however, shows that the dummy interaction variable Tobin Q with excess leverage has a positive impact on focused business investments and has a negative impact on diversified business investments. This is due to the financial constraints in the investing companies.

According to Ajide (2017) the company having financial constraints will get different impacts in the firm-specific impacts of the company financial condition on the company investments decision making. As can be seen from the research carried out by Ajide (2017) the research results obtained are not consistent with those of the previous research because of the financial constraints. Therefore, in this study, it is assumed that because of the financial constraints, the level of company's growth rate did not affect the company investments decision.

CONCLUSION

This research shows that cash flow, Tobin Q, leverage, and sales have significant impacts on agro-industry company investments in Indonesia. Leverage has a negative impact on the company investments. This proves that the presence of leverage has made investments decision become tight. Cash flow has a negative impact on the company investments, which shows the existence of financial constraints when the company will invest. Tobin Q and Sales have a positive impact on the company investments, which shows that the higher the value Tobin Q and Sales, the bigger the investments. Furthermore, the research also shows that the level of company's growth rate does not affect the company investments, and the level of company's growth rate does not give any leverage impact on the company investments.

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STUDY OF LOCAL GOVERNMENT PROBLEMS IN IMPLEMENTATION OF DEVELOPMENT BUDGET POLICY PLANNING IN ECONOMIC SECTOR OF INDONESIA

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ABSTRACT

Purpose of this study is to provide recommendations for development budget planning in leading sectors of the economy. Preparation of policy planning of Regional Revenue and Expenditure Budget by using this performance-based budget system prioritizes efforts to achieve the allocation of output work plan and input costs. The projection shows, GRDP in Jakarta of Indonesia increased from Indonesia Rupiah (IDR) 543.02 trillion in 2016 to IDR. 565.42 trillion in 2017. Furthermore GRDP numbers continue to increase and reach the figure of IDR 659.32 trillion in 2021. Similarly, regional expenditure, the projection also shows that in 2017 regional expenditure has decreased to IDR 39.37 trillion (18.07%) of regional revenue in 2016 amounting to IDR. 48.06 trillion.

KEY WORDS

Budget, policy, development, planning, local government, economic sector.

The study of the implementation of economic development budget policy can not be separated from the impact of planning that must be seen as an integral part in every process both in making and implementation of the decision. As a consequence, the policy of planning will be meaningless unless decentralization is followed in its implementation (Conyers et al, 1990). According to Austen and Banks, (1988) Decentralization itself is the responsibility for the planning and or alternative implementation of the balance of power between the central and regional governments in formulating the economic development budget policy on what which will be faced for development in the present and future. In other words, the implementation of a decentralized development budget planning policy is a political process that needs to be further analyzed.

Implementation of local financial policies should be harmoniously in support of development programs to achieve substantial regional economic growth (Aba, Yussof, Saidatulakmal.; 2015). Government revenue and expenditure budgets need to be laid out in a budget system capable of improving governance both in general governmental duties and development tasks (Foremny, et al, 2014). Some of the causes that make the budget in Jakarta Indonesia hampered, the result of the delay is caused by (1). The organizational stability is not conducive for the Regional Device Work Unit (RDWU) to show good performance. Even RDWU, tend to be very careful to make a breakthrough through a program. (2). Government steps in Jakarta Indonesia using e-budgeting as a budgeting system is also still immature. This makes RDW difficult to apply. (3). To be imposed e-budgeting, ultimately accessing the opening of game gaps in auctions made via e-budgeting (Schofield and Sened., 2006).

Routine and development budget in Jakarta Indonesia needs to be more synchronized and consolidated according to budget planning that is continuous, gradual and increasing with maximum orientation of the results. Based on the above point of view, the problem of local government in absorbing Regional Budget of Jakarta is still very low. Based on reports from the regional finance and asset management board, the absorption of the budget only reached 13.86 percent or IDR. 8.03 trillion from the total IDR.67.1 trillion. The lack of budget absorption is considered to have implications for the low cost of infrastructure development for communities in Jakarta Indonesia. In that context, Jakarta Indonesia still needs a high cost to build an adequate public infrastructure. Moreover, people need the realization of the

maximum budget to finance development in Jakarta Indonesia. This provides a role in the economic base of income as well as the position of each economic activity for the Regional Revenue and Expenditure Budget (RREB) in the absorption of the budget for the acceleration of economic improvement and public services in Jakarta Indonesia (Bararuallo, and Aba., 2017).

METHODS OF RESEARCH

Analysis of Structure and Growth of RREB (Adiab, et al., 2007) is the RREB Structure analyzed by looking at the contribution of revenue sources and expenditure items relative to total RREB in Jakarta Indonesia. According to Baltagi, (2001), revenue growth and expenditure in RREB for eight years (1993-2000) will be calculated using the exponential trend equation (Holt, 1957), and projection analysis from 2017 - 2021. Analysis of RREB Capacity (Albacete, and Lindner, 2013), is to look at the performance of local government revenues and expenditures of Jakarta Indonesia using the ratio of revenue to GRDP and revenue to development budget (Gomes, 2015).

RESULT OF STUDY

Based on Hunter Blair (2016), the budget is the estimated performance to be achieved over a given period of time expressed in financial size. the budget can be defined as a financial plan in the form of expenditures and sources of income for one year. There is a close relationship between budget, planning and control (Arian and Shamir, 2011). Planning is used to see what action should be taken to achieve a particular goal in the future (Blekesaune .; 2007), while control is more looking backward, determining what actually happened and comparing it with planning.

Meanwhile, according to Binzer and Klemmensen (2005), the budget is a document showing the condition or financial condition of an organization that provides information on income (Alesina and Tabellini, 2007), expenditures, activities and objectives to be achieved. Revenue and Expenditure Budget (RREB) is the state budget prepared every year. Therefore, the RREB has a very important role because it becomes one of the main tools for the welfare of the community.

Budgeting is a process or method for preparing a budget (Miekatrien Sterck and Bram Scheers, 2006). Budgeting is a process of translating an activity plan into a financial plan (Weimer and Vining, 2005). In a broader sense, budgeting involves budget preparation, implementation, control, and accountability known as the budget cycle. Budgeting is related to the process of determining the amount of fund allocations for programs and activities. So, it can be concluded that the budget is the driving force and budgeting is the process to prepare the budget.

One of the instruments that can be used to analyze the financial capacity of the region is the instrument of GRDP (BPS.; 2017). The instrument provides an indication of the potential and dominant role of the regional economic sector seen from the creation of output and added value as well as final demand (Kuhlmann, 1998). Ratio of RREB to GRDP is to see how far the role of local government in providing public services through government expenditure in RREB (Aba., 2017).

Table 1 – Ratio of Regional Revenue and Expenditure Budget / RREB to GRDP in Jakarta Indonesia, 1992-1997

Years	RREB (Million IDR)	GRDP (Million IDR)	Ratio (%)
1992	1,130,731.3	16,001,557.0	7.1
1993	1,476,521.3	51,106,389.0	2.9
1994	1,847,936.7	55,505,268.0	3.3
1995	2,404,720.8	60,638,216.0	4.0
1996	2,835,833.8	66,164,802.0	4.3
1997	2,981,385.6	69,543,347.0	4.3

Source: Data Analyzed by Researcher.

The expenditure ratio on GRDP performance in Jakarta Indonesia showed a declining trend in 1993 (2.9%), then increased annually from 1994 (3.3%) to 1997 (4.3%). Means, the ability of local governments in providing public services is getting better. The proportion of expenditure in the Revenue and Expenditure Budget is an indicator to see the effectiveness of government expenditures on increasing output generated in the regional economy. In other words, the ratio of Revenue and Expenditure Budget to the increasing GRDP shows that the proper allocation of expenditure budget can spur economic development in Jakarta Indonesia.

The expenditure ratios on GRDP performance in Jakarta Indonesia showed a downward trend in 1998 (3.1%), then increased in 1999 (6.0%), then decreased annually from 2000 (5.2%) to 2002 (3, 5%). This means, the ability of local governments in providing public services has not improved. The proportion of expenditure in the Revenue and Expenditure Budget is an indicator to see the effectiveness of government expenditures on increasing output generated in the regional economy. In other words, the ratio of Revenue and Expenditure Budget to the decreasing GRDP indicates that the expenditure budget has not been appropriately allocated in order to spur economic development in Jakarta Indonesia. More can be seen in the table below.

Table 2 – Ratio of Regional Revenue and Expenditure Budget / RREB to GRDP in Jakarta Indonesia, 1997-2002

Years	RREB (Million IDR)	GRDP (Million IDR)	Ratio (%)
1997	2,981,385.6	69,543,347.0	4.3
1998	1,802,068.9	57,380,517.0	3.1
1999	3,434,601.1	57,215,224.0	6.0
2000	3,127,364.2	59,694,418.0	5.2
2001	9,274,825.6	238,656,139.0	3.9
2002	8,754,245.8	250,331,157.0	3.5

Source: Data Analyzed by Researcher.

The expenditure ratio on GRDP performance in Jakarta Indonesia shows an increasing trend every year from 2003 (3.9%) to 2007 (5.2%). This means, the ability of local governments in providing public services is improving.

Table 3 – Ratio of Regional Revenue and Expenditure Budget / RREB to GRDP in Jakarta Indonesia, 2002-2007

Years	RREB (Million IDR)	GRDP (Million IDR)	Ratio (%)
2002	8,754,245.8	250,331,157.0	3.5
2003	10,382,597.1	263,624,242.0	3.9
2004	11,493,273.3	278,524,823.0	4.1
2005	12,435,352.4	295,270,545.0	4.2
2006	15,161,577.7	312,751,711.0	4.8
2007	17,280,823.4	332,971,255.0	5.2

Source: Data Analyzed by Researcher.

The proportion of expenditure in the Revenue and Expenditure Budget is an indicator to see the effectiveness of government expenditures on increasing output generated in the regional economy. In other words, the ratio of Revenue and Expenditure Budget to the increasing GRDP indicates that the proper allocation of expenditure budget can spur economic development in Jakarta Indonesia.

Ratio of expenditure on GRDP performance in Jakarta showed a declining trend in 2008 (4.5%), then increasing every year from 2009 (5,3%) until 2012 (7.0%). This means, the ability of local governments in providing public services is improving.

The proportion of expenditure in the Revenue and Expenditure Budget is an indicator to see the effectiveness of government spending on increasing output generated in the regional economy. In other words, the ratio of Revenue and Expenditure Budget to the

increasing GRDP shows that the proper allocation of expenditure budget has been able to spur economic development in Jakarta Indonesia.

Table 4 – Ratio of Regional Revenue and Expenditure Budget / RREB to GRDP in Jakarta Indonesia, 2007-2012

Years	RREB (Million IDR)	GRDP (Million IDR)	Ratio (%)
2007	17,280,823.4	332,971,255.0	5.2
2008	15,956,526.1	353,723,390.0	4.5
2009	19,511,099.4	371,469,500.0	5.3
2010	21,555,447.7	395,633,574.0	5.4
2011	26,423,682.2	422,121,511.0	6.3
2012	31,558,706.9	449,805,475.0	7.0

Source: Data Analyzed by Researcher.

The expenditure ratio on GRDP performance in Jakarta Indonesia shows an increasing trend in 2013 (8.0%), then declines in 2014 (7.5%), and further increases again in 2015 (8.2%) through 2016 (8.9%). This means, the ability of local governments in providing public services is improving. The proportion of expenditure in the Revenue and Expenditure Budget is an indicator to see the effectiveness of government expenditures on increasing output generated in the regional economy. In other words, the ratio of Revenue and Expenditure Budget to the increasing GRDP shows that the proper allocation of expenditure budget has been able to spur economic development in Jakarta Indonesia.

Table 5 – Ratio of Regional Revenue and Expenditure Budget / RREB to GRDP in Jakarta Indonesia, 2012-2016

Years	RREB (Million IDR)	GRDP (Million IDR)	Ratio (%)
2012	31,558,706.9	449,805,475.0	7.0
2013	38,294,384.9	477,285,245.0	8.0
2014	37,759,773.0	504,225,592.0	7.5
2015	43,031,322.9	523,925,770.0	8.2
2016	48,059,574.8	543,020,428.0	8.9

Source: Data Analyzed by Researcher.

The budgeting system in Indonesia is reflected in the State Budget. According to Goyal Ashima (2010), the state budget is the government's annual financial plan approved by the House of Representatives, which contains a systematic list and details of state revenue and expenditure plans for one fiscal year (1 January-31 December) act and implemented openly and responsibly to maximize people's prosperity.

The consists of state revenues and grants, state expenditures, and financing. State Budget is the main instrument of fiscal policy to direct the national economy and stimulate economic growth. The amount of budget absorption will have an impact on the higher rate of economic growth. The ratio of realized expenditure absorption of Ministries or Institutions to budget realization is a form of indicator of effectiveness of state expenditure. In addition, State Budget policy is expected to respond to the dynamics of the people both related to broad economic development, as well as the life of the people themselves, so that required a flexible fiscal policy.

To see the picture of the economy in Jakarta Indonesia in the future can be done by projecting the amounts obtained in the structure of GRDP. Projection Results GRDP in Jakarta Indonesia 5 years (2017 - 2021) increased from IDR. 543.02 trillion in 2016 to IDR. 565.42 trillion in 2017. Furthermore GRDP numbers continue to increase and reach the figure of IDR. 659.32 trillion in 2021.

The analysis results show the result of projection of regional and government expenditure in Jakarta Indonesia in 2017 - 2021. Projection data indicate that in 2017 local revenue decreased to IDR. 41.40 trillions (12.91%) from the previous year's revenue of IDR. 47.54 trillion. Regional income figures then increase every year to reach IDR. 49.07 trillion in 2021.

Similarly, regional spending, the projection also shows that in 2017 regional expenditure has decreased to IDR. 39.37 trillion (18.07%) of the previous year's revenues of IDR. 48.06 trillion. Regional expenditure subsequently increase every year to reach IDR. 46.71 trillion by the year 2021.

DISCUSSION OF RESULTS

Regional economic development efforts face various opposition from within and outside (Bargsted and Kedar., 2009). This situation requires the ability and policy of Jakarta Indonesia government to make the process of accelerating the preparation and implementation of economic development that focus on economic base. The results of the study indicate that the use of development budget in Jakarta Indonesia relies too much on development costs to non-RREB funds. Local government in Jakarta Indonesia has financed development with Corporate Social Responsibility (CSR) funds. Such a breakthrough is even contradictory to the RREB that has been approved because it makes him abandoned and not absorbed maximally. So far, programs conducted using non-budget funds such as CSR, to note, to date there are indeed some infrastructure in Jakarta Indonesia built using CSR funds such as Lenggang Jakarta, the location built for street vendors Monas area. In addition, there is also the procurement of garbage trucks, Integrated Child Friendly Public Space Development, procurement bus city tour level, handling Pluit dam and Rio Ria.

Comparative study of the implementation of economic development budget (Armstrong, and Taylor (2000) in collecting data and information on the state of the region and the potential of the economic sectors it possesses as input determination in clarifying the regional economic picture objectively, thus providing the necessary input in determination of local government policy (Rosenthal, 2012) for the creation of innovative economic development systems (Conyers and Hills, 1990).

CONCLUSION

Based on budget implementation as part of policy implementation, it can be assumed that budget implementation is influenced by interests that focus on political power and decisions. The outcomes of economic development and policy implementation by the Regional Government in Jakarta Indonesia can ultimately be evaluated and assessed for success through the economic measures of budget use that have been achieved according to plan, it is seen through the government's accountability report, , objective community reports as well as reports from the results of scientific research conducted by the community or social institutions that demonstrate the performance of the implementation of regional development.

From the discovery shows the trend of budget use for 25 years showed fluctuations in the absorption. This is seen also at the end of the year projection results show, GDP in Jakarta Indonesia increased from IDR. 543.02 trillion in 2016 to IDR. 565.42 trillion in 2017. Furthermore GRDP numbers continue to increase and reach the figure of IDR. 659.32 trillion in 2021. Similarly, regional expenditure, the projection also shows that in 2017 regional expenditure has decreased to IDR. 39.37 trillion (18.07%) of regional revenue in 2016 amounting to IDR. 48.06 trillion. These performance results continue to be used as inputs for subsequent policy evaluations in revising some errors in the policy to be reassembled into future policy planning guidelines.

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RE-ACTUALIZATION OF BALE BANJAR FUNCTION IN DENPASAR CITY

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ABSTRACT

The aim of this study was to know and understand the re-actualization of bale banjar function in Denpasar City. This study was conducted due to the imbalance between the assumptions and current reality. The data sources of this study were some bale banjar-s in Denpasar City, related informants, and previous research findings. All data were collected using observation, interviews, and literature studies techniques and were analyzed using sociocultural evolution, community rationalization, and commodification theories. The research findings showed that re-actualization of bale banjar function in Denpasar City happened due to the high demand of economic space of capitalist economy and the changes of local society's way of thinking; re-actualization of bale banjar's form in Denpasar City could be seen from the changes in style and appearance of the spaces that are now widely designed into two floors. The society used the upper floors as a gathering place and the lower floors are rented as a center of economic activity; re-actualization of bale banjar function in Denpasar City had the implications on the way of thinking, the conception of bale banjar form and function and material culture such as the weakening of social relations among krama banjar.

KEY WORDS

Bale banjar, social relation, community, economics, changes.

Bale banjar is a gathering place for organization of traditional society in Bali. *Bale banjar* is a subsystem of *Pakraman* Village. The main principle underlying social awareness at the *banjar* level is the *pasukadukaan* bond which makes the people who are the members of that *banjar* social organization feel the same destiny and goodness in joy and sorrow. In the bond of social awareness at the *banjar* level, the society conducts various activities, both social and religious activities. The examples of social activities are cooperatively repairing and cleaning the road, establishing and/or repairing the worship place and other social facilities. The examples of activities in the field of religious ceremonies, they perform ceremonies at *Pura Khayangan Tiga*, such as performing *bhuta yadnya* (*macaru*) and *melasti* ceremonies. However, although the local society is still doing various social and religious activities in *bale banjar* until now but many *bale banjar*-s in Denpasar City has undergone re-actualization. The physical appearance and the function of *bale banjar* have now changed a lot. However, this phenomenon, that is now common in the Denpasar City, does not make any conflicts in the society. The local society seems to agree and support the occurrence of this re-actualization. It raises many questions whose answers can only be found through in-depth research.

This article was compiled from the research findings that aimed to know and determine the re-actualization of *bale banjar* function in Denpasar City. Denpasar City is the lifeblood of

Balinese society. Denpasar, the center of government of Denpasar City and the center of government of Bali Province, currently has implication to various sectors of its society's life. The function and role of money as a medium of exchange or medium for shopping becomes very essential for the local society. By using money, human can buy various necessities of life.

From historical perspective, Denpasar was once the center of Badung Kingdom. Its establishment milestone can be tracked from the pillars of the founding of Puri Denpasar in 1788. In the past, Denpasar City was a favorite park of the King of Badung named Kyai Jambe Ksatrya who lived in Puri Jambe Kesatrya (it is now Satrya market to the north). It was because of Denpasar City was a favorite park of the King of Badung, it can be assumed that Denpasar City which is now one of the nine government districts/cities in Bali Province was the development of the spatial city of the kingdom and Puri Denpasar became the center of the government at that time (Wiasti, 2010: 52).

Denpasar City consists of four sub-districts namely East Denpasar Sub-district, South Denpasar Sub-district, West Denpasar Sub-district, and North Denpasar Sub-district. Generally, the economic growth of Denpasar City has accelerated and exceeded the economic growth of Bali Province. It happens because in addition to the center of education, Denpasar City is also a trading center in Bali which causes many entrepreneurs and investors outside Bali are competing to develop their business in Denpasar City. Moreover, the rapid development of tourism in this city makes Denpasar increasingly being targeted by migrants to pursue their fates and earn sustenance. The emergence of various types of business in the field of tourism in Denpasar City such as hotels, restaurants, and travel services that absorb a lot of labor proves that Denpasar is quite successful in developing the tourism sector. This high labor absorption in this sector indicates that the tourism life is flexible enough and is able to position workers based on the qualifications possessed by the workers. High activity of the society in this sector makes the pulse of Denpasar as if it never stops. It runs from the morning to morning again in which life in this city seems never sleep even for a second. In entertainment venues including nightclubs or traditional markets such as Badung Market, Kreneng Market and other markets in Denpasar City seem never stop for almost 24 hours. It proves that the activity of the society in Denpasar is very high.

In socio-historical perspective, most people in Denpasar City embrace Hindu religion which adheres to the values of Balinese tradition and custom culture that have been inherited from their ancestors. Regarding to this, the typology of Denpasar society, which is an integral part of Balinese society, is not entirely different from the characteristics of Balinese society in general. One interesting feature of the social and cultural systems existing in Balinese life is the development of units of social unity, such as villages and *banjar*-s. According to Suda (2008: 30), village is a form of social unity whose activities are always associated with the issues of custom and religion. On the contrary, the official village is an administrative unit so that its activities are more centered on administration and development. Although both villages engage activities in different fields but in running the wheel of life, both have a functional relationship. It is because the physical construction undertaken by the official village is a unity that cannot be separated by the spiritual development that is carried out by those traditional villages.

In socio-cultural perspective, the society of Denpasar City, especially those who embraces Hindu religion adheres to patrilineal kinship system. The implementation of rights and obligations in the family is based on straight paternal lineage. The orientation of cultural values that is adopted by the society of Denpasar, especially those who embraces Hindu religion is prioritizing harmony in living their lives. By adhering to the value of *tri hita karana* philosophy in living their lives, the society of Denpasar City always emphasize the principle of harmony in their relation with God Almighty (*Ida Hyang Widhi Wasa*) which is called *parahyangan* element, harmony relationship among human being which is called *pawongan* element, harmony relationship between human being and their environment which is called *palemahan* element.

The institutional system of the custom which is still functional in Denpasar City includes *pakraman* village and *banjar* (Sukarma, 2012: 98). *Pakraman* village in customary law of Bali

has a unity of tradition and manners that are traditionally tied up in a *Pura Kahyangan Tiga* (village pura). Meanwhile, *banjar* is a subsystem of *pakraman* village. The main principle underlying the social ties of the *banjar* is the *pasukadukaan* bond; feeling the same destiny, both in joy and sorrow. In this *banjar* bond, the society performs various activities including social, cultural, and religious activities.

The aim of the study was to know and understand the re-actualization of *bale banjar* function in Denpasar City. Basically, as a gathering place of society, *bale banjar* must have a form that is in accordance with its function. However, the reality was different. Although the local society still occupy *bale banjar* as their gathering place for social, cultural and religious activities up to now, however in reality this re-actualization continues without causing conflict. It raises many questions:

Why does re-actualization of *bale banjar* function happen in Denpasar City?

How is the form?

What are the implications for the lives of the society?

METHODS OF RESEARCH

This study implied qualitative method. The data sources of this study were some *bale banjar*-s in Denpasar City, related informants, and previous research findings. All data were collected using observation, interviews, and literature studies techniques and were analyzed using socio-cultural evolution, community rationalization, and commodification theories.

RESULTS AND DISCUSSION

Re-Actualization of Bale Banjar Function. The occurrence of re-actualization of *bale banjar* function Denpasar City cannot be separated from the development of culture and the transformation of public awareness in interpreting their traditions and social lives. The society of Denpasar, with high mobility level, understands the life more practically and efficiently. The intensity of social relation pattern among the people has decreased so that this social life needs special momentum. Social spaces including *bale banjar* that serves mainly for religious and socio-cultural activities faded along with the modernization of society life in Denpasar City.

Modernity is being identified as a construct of modern culture that stands on the principles of ratio, subject, identity, ego, totality, absolute ideas, linear progress, objectivity, autonomy, emancipation, and binary opposition (Haryono, 2005: 35). Habermas (Lubis, 2004: 6) uses the term "modernization" as a process of cultural differentiation and social autonomy. Therefore, modernism is understood as the impact of the differentiation process. If modernization is a process of differentiation and cultural autonomy, modernity is a massive social and cultural change associated with industrial capitalist society. Berger (2003) stated that modernization or modernity is a pluralization of values, norms, meanings, and symbols that lead to cultural segmentation and diversity on way of life. Abraham (1991: 206) explained that modernization is a comprehensive process of economic growth, social mobilization, and cultural expansion. Economic growth is defined as a progressive process of the economic welfare of the population in general. Social mobilization is defined as a process of greater involvement in secondary groups, new patterns, anticipatory socialism, and the creation of new reference groups that are separate from the traditional ones. Furthermore, cultural expansion is defined as a prescriptive process of prescriptive action, extension of alternative spans, and initiation of new patterns of socialization and behavior.

According to Durkheim, modernity is determined by organic solidarity and the weakening of collective consciousness. George Simmel said that modernity is determined by two interconnected sides, the city and the money economy. The city is the place where modernity is centered or intensified, while money economy causes the spread of modernity and its extension (Ritzer 2003: 551). Giddens defined that modernity consists of four fundamental institutions, namely capitalism, industrialism, surveillance capabilities, and the control of the means of violence. Capitalism is characterized by commodity production,

private ownership of capital, labor without property, and a class system derived from these characteristics. Industrialism involves the use of natural resources and machinery to produce goods. Surveillance capabilities refer to the surveillance on the activities of individual citizens in the political environment. The dimensions for the control of the means of violence are military forces including the industrialization of war equipment (Ritzer and Goodman, 2004: 555).

In addition to the four modernity institutions, Giddens emphasized the role of interpretation and system of meaning in human life. He placed structures and actors as mutually supportive dualities. The point is that humans are active and creative subjects. Therefore, the structure is outside the individual. The structure has its existence inside the mindset that contains the rules and resources, including knowledge, abilities, and practical skills obtained by a person through socialization. Giddens considered that structure is a medium and outcome of action. Structure becomes medium because one cannot act without the knowledge and the ability that has been considered before. Structure becomes a result because the cultural pattern is reproduced when it is used. Structuralization captures images of social life as a reciprocal process between individual actions and social forces. Humans produce the social order because of the need for trust and fear of uncertainty that so-called ontological security. Social life is turned to routine and conventional so that everyone feels safe (Sutrisno and Putranto, 2005).

In the perspective of modern society, space is increasingly being released from its local and place (Ritzer, 2003: 555). The society of Denpasar City argues that their tradition, especially the utilization of *bale banjar* has changed. The change takes place in the management of *bale banjar*. The traditional characters of *bale banjar* also get a new interpretation based on the condition of the current society. Modern way of thinking of this *krama banjar* can be seen from the design of *bale banjar* which is built as multifunctional. It means that they no longer consider *bale banjar* as only a product of tradition that the role and traditional function must be kept strictly. This modern nuance is presented by taking on other roles outside of its traditional role. It is not a taboo to use *bale banjar* for activities outside of social, custom, and religious activities. When it is traced back, as anthropologically portrayed by Covarrubias (2014), that a *banjar* should have meeting rooms, organizational meeting rooms, and *kulkul* towers to summon society to gather, kitchens with all kinds of cooking furniture, *gamelan gong* and *gedong* for storing dance equipment. It used to be said that Balinese men spent their spare time in *bale banjar*, gossiping, poking chickens, watching the practices of *sekaa-sekaa gong*, or just sitting around. At that time the *bale banjar* really became a public space for *krama banjar*. Almost every day, *banjar* is filled with social activities of the *krama banjar*. The ancient *bale banjar* portraits revealed by Covarrubias (2013: 67) are now very different from the current facts.

Currently, *bale banjar* that was previously a socio-cultural space, is now an economic commodity space. The economic burden of *krama banjar* is considered to be quite heavy to finance all religious, cultural and social activities, including the maintenance cost of *bale banjar* and *pura*. According to people, renting some *bale banjar* spaces permanently can economically handle the needs of *krama banjar*. The economization of *bale banjar* provides advantages for *krama banjar*. In addition, the administrators or *prajuru* will not be bothered for collecting the dues of *banjar* members because all have been borne by the tenant of *bale banjar* space. The practical and economical dimension in managing *bale banjar* is greatly experienced by *krama banjar*.

In the modern society life, with the system of capitalism in understanding the money, the *banjar* administrators are not naive and openly affirm their attitude in the effort to make a commodity for *bale banjar*. It means that the effort to rent *bale banjar* for economic interests is not considered as something that is forbidden to do. The *krama banjar*-s also have no guilt and moral burden to do business in their *bale banjar* space. Moreover, the aim of renting *bale banjar* is to ease the burden of the *krama*. The commodification process of *bale banjar* is carried out through a mutual consensus. The economic orientation changes the way of *krama banjar* thinks about their *banjar*. They are more likely to think of economic pragmatism to ease the social and cultural burden that has been endured by the *krama banjar*. It shows

that economic interest is considered to be at the above level compared to cultural and social interests. It is a representation of the pragmatic and economical way of thinking of modern society. To carry out an activity, it must have a certain economic impact.

The development of city tour in Denpasar becomes one of the causes the *krama banjar* to rent *bale banjar* space for the merchants. It means that it has already carried out since the 1980s in which *krama banjar* in Denpasar City consider to take business opportunities to rent *bale banjar*. The benefit of renting *bale banjar* is used for social, religious, and cultural activities. The benefit of collecting the dues and renting the *bale banjar* is used to build a more majestic banjar of two floors. The goal is to accommodate the merchants on the first floor and for other social activities on the second floor. However, it is recognized that renting *bale banjar* is a solution to answer the economic problems of *krama banjar*. *Bale banjar* which was previously considered as a burden for demanding economic expenditures for social and religious costs, it is now is considered as the economic asset of *krama banjar* since the tourism aspect is developing in Denpasar City.

The Form of Re-Actualization of Bale Banjar Function. The form of re-actualization of *bale banjar* function is a representation of the adaptive character of *banjar* society in facing the changes and social complexity as the result of modernization. The re-actualization of *bale banjar* function is the result of adaptation to the changing conditions. The following findings will present some field observations about the form of re-actualization of *bale banjar* function in Denpasar City. Meanwhile, qualitative change is a change and it is a new type or form that replaces the old type and form. Definitely, the qualitative change is the result of the previous quantitative change. When quantitative changes are accumulated over certain period, it will result a transformation that is termed by qualitative change.

According to Sanderson (2003: 64), many evolutionists argued that the direction of the major tendency in sociocultural evolution is the increasing complexity of society. Robert Carneiro (1972), for instance, stated that inside the reality is what is meant by evolution, namely changes that lead to the increasing complexity of society. In addition, the use of other concepts will undermine and diminish its understanding.

The sociocultural evolution has many dimensions. The sociocultural evolution is a process of change; when a sociocultural form is shifting to another. The sociocultural evolution emphasizes the process of qualitative change rather than quantitative change. Quantitative change is a change from less-amount to more-amount and vice versa. Therefore, it has many direction tendencies. One character of sociocultural evolution is adaptation. According to Sanderson, sociocultural evolution is an adaptive outcome of changing conditions. The society thrives to meet new demands and needs. However, the society does not always face new demands and needs. In an unchanging situation, the existing sociocultural patterns are sufficient to solve basic human problems and no evolutionary changes are necessary. Both will occur depending on the underlying conditions. It means whether the conditions that are necessary for the existence and welfare of human beings are changed or remained the same.

Triguna (1997: 91) mentioned that modernization and globalization have introduced new values in the traditional environment. Members of the community advocating a tradition always experience the process of sociocultural differentiation and a generalization of the values, norms, and meanings that come along with it. In relation to culture, the shift has contributed to knowledge as a cultural unit. Everyone, whose knowledge system has been touched of new values, tries to give new meaning to the previous order, not to mention the things that are normative, as written in the rules of custom and tradition. A process of mutual destruction and integration occurs in a mechanism that so-called adaptation improvement or adaptation with modification through a process of understanding and interpretation toward the abstraction level in general acceptance. Adjustment effort contains a double meaning in which human beings try to adjust their lives with the environment. The re-actualization of *bale banjar* function in Denpasar City is one form of society efforts to adopt new values to their lives. This process leads to more adaptation with modification. In term of cultural infrastructure, *bale banjar* undergoes a functional modification process sociocultural space function to an economic space through re-actualization. One form of re-actualization of *bale*

banjar function is as a place to run a cooperative business as presented in the following figure.



Figure 1 – *Bale Banjar* of *Binoh Kelod* that is rented as a cooperative office
(Documentation: Putu Suryani, 2017)

From the physical appearance, *bale banjar* above is included in magnificent category. The pattern of the building is modern but it contains Balinese nuance. The side part is a sturdy brick building made of brown brick - typical of *bebadungan* style. In the front yard of this *banjar*, there are two *jepun* trees. By passing by this *banjar*, people will be amazed because the physical appearance of this *banjar* is like a luxury house. *Bale Banjar* of *Binoh Kelod* is built on two floors. The construction was completed in 2014. The cooperative of *Kertha Sedana* is intended to ease the economic burden, especially the *krama banjar* of *Binoh Kelod*. The existence of cooperative of *Kertha Sedana* is considered to contribute economically at large scale in the middle of difficult and heavy burden of *mebanjaran*. The existence of cooperative in front of this *bale banjar* porch is not free. The administrators of *banjar* also put the rent for the cooperative office. The benefit from renting the *bale banjar* space for cooperatives is used for *banjar* cash in support of all kinds of social, cultural and religious activities. Triguna (1997) said that one sign of the characteristic changes of the Balinese society is to be economic human, which means that the economy becomes a measure in human life. Every morning, *Bale Banjar* of *Binoh Kelod* becomes a cooperative office that cannot be interfered by any activities, including other social activities.

Krama banjar is really conscious in managing their *bale banjar* space into a cooperative office. Even *bale banjar* front space is considered very strategic for this saving and loan business. In addition, it is very close to the traditional market. This opportunity is taken by *krama Banjar Kayangan*, rather than letting the *bale banjar* empty and working only at certain times. They also understand that *bale banjar* is not monolithic – that it only refers to a single function, but can be a multifunctional space, especially in economic terms. As mentioned by Piliang (2004: 455) that all social reality is a process. It means that whatever happens in this world contains contradictions and is always in the process of transformation. It is reflected to *bale banjar* which is rented as a trading place.

The society of Denpasar City not only considers that *bale banjar* is a place to preserve traditional social ties and cultural activities only. Changes in cognitive structure with instrumental rationality due to modernity makes people think more economically about the function of *bale banjar*. Therefore, it is not surprising that *bale banjar* spaces are now re-actualized as a trading place to earn money. The phenomenon of re-actualization of *bale banjar* function into a trading place can be seen in Banjar Titih Tengah, West Denpasar Sub-district. They do trading activity from morning until afternoon. The *banjar* administrators are consciously rented *bale banjar* to fruit sellers to increase the income of the *banjar* economy. Marx mentioned in Turner (2003: 126) about commodity fetishism that it only occurs in capitalism of economic basis which causes material interests to spread into every social structure, including the public consciousness structure. As revealed by Abraham (1991: 209)

that modernity is characterized by economic growth, especially the growth of specialization of economic roles and unit of economic activity of production, consumption and marketing. The fact is that it is impossible to separate the production economy from the local cultural ideology. It happens because the artifact, image, representation, and even feelings and structures of cultural psychic have become part of the world economy.

Denpasar is transforming into a city of tourism with the modernization of development. Indirectly, it opens new spaces for industrial development or economic activity. Not to mention also the possibility that social and cultural spaces are functionally renewed in order to support its life and survival. Reflexivity to the culture and tradition is carried out to adjust to the current development of the era that continues to advance all aspects of human life, especially in Denpasar City. In this context, social space, such as *bale banjar* is always re-actualized functionally and presents new forms. This *bale banjar* appearance does look different from the front side. *Bale Banjar* is located right in the middle of the hubbub of economic activity of the traders in Kereneng market. In the afternoon, this *bale banjar* front room is filled with the merchant carts at Kereneng Market. The appearance of *Bale Banjar* Kereneng is very different from other *bale banjar*. It is because of the front side of *bale banjar* storefront has already been plastered by the signature of makeup training from Agung Salon. The *bale banjar* space that is used as makeup training is not only on the first floor but also on the second floor. It means that the entire *bale banjar* space is used for the needs of Agung Salon. Nevertheless, Agung Salon bears all kinds of religious, social, and cultural costs in Banjar Kereneng. Therefore, the local community never minds if its social and cultural space is commercialized to Agung Salon as the hiring party.

Here, the productivity of *bale banjar* is no longer measured from the results of carrying out organized social activities or rebuilding solidarity among *krama banjar*, but the parameters used are the economic benefits. *Bale banjar* is considered as productive when it generates profits economically. It means that *bale banjar* is not a standard, conventional, and final cultural product. *Krama Banjar* is always adaptive and negotiable to the dynamics of change that impact on life in *banjar*. Their attitude is also very practical by utilizing *bale banjar* effectively and efficiently. Many institutions make cultural transformations to realize efficient (economic) and rational (in making decision) values that are free from tradition, custom, and communal bonds. As the banjar manners—in this context—actualize the *bale banjar* for the survival of the banjar itself. It means that what happens currently in the *bale banjar* is a mirror or representation of the rate of social and cultural changes in urbanized society that undergo modernization. It is a form of adaptation with modifications that is made by the banjar administrators to be able to maintain its existence in the midst of the development of the current era. The people of Denpasar City respond to modern influences by re-actualizing *bale banjar* function in more functional forms without neglecting the main function of *bale banjar* as a gathering place of society in maintaining its social, cultural and religious life in this global era.

The Implication of the Re-Actualization of Bale Banjar. Kinship is a society unit that becomes one of the pillars of Balinese society structure. The Balinese kinship has approximately the same pattern but it uses different terms and shapes to each other. Various terms are used to refer to this kinship, such as *soroh*, *warga*, *krama*, *pasametonan*, and *preti sentana*. All of these terms refer to the unity of the lineage or ancestral commonality. Bonds and kinship are shown by the word *nyama*. The word *nyama* comes from the Balinese word *sama* which means the same ancestor. Another term is *sameton* that comes from the Balinese word *sa* which means one and *metu* which means out or born. Therefore, *sameton* means born from one mother.

The other unit of society is the *pakraman* which is the local society unit. *Pakraman* is formed based on a social contract of agreement to organize and develop a common life according to the joys, the harmony of life, and mutual cooperation in living the joys and sorrows in a place or village. This formally written social contract is called *awig-awig*.

The members of *pakraman* are plural in terms of origin (geographical) and lineage (genealogical), but is egalitarian in the determination and execution of rights and obligations. In addition to be united by the common place which is commonly called by *wewidangan* or

wewengkon, *pakraman* village is also united by the order of rights and obligations in performing worship and performing religious ceremonies at the main *Pura Kahyangan Tiga*, namely *Pura Desa* or *Pura Bale Agung*, *Pura Puseh*, and *Pura Dalem*. In addition, other *puras* such as *Pura Kahyangan* and *Pura Prajapati* are a unity with *setra* or "cemetery", and *Pura Melanting* is a part of the market of *pakraman* village.

In the beginning, the residents or *krama* of *pakraman* village are a collection of a number of core families with different backgrounds of origin, both geographically and genealogically. Over time, these core families evolve into extended families and formed their respective kinship units in their villages into branches or twigs of their own *pamaksan*, *dadya* or *pasametonan*. The residence house, which was originally the residence of the core families that lived in a banjar in particular *pakraman* village, then became *umah tua*, *umah gede*, or so-called *umah desa* (Geertz, 1975: 40).

Most new families moved from the old house. They build new houses on family estate land or on a new land they buy. This process is called *ngubu*, *mondok* or *ngarangin*. The new core family houses that are built outside the old house are called *kubu* or *pondok*. Culturally, the word "*mulih*" (derived from the word "*mula*" or the beginning) is generally only used for the meaning of going back to the old house or *umah desa*, while for the meaning of going back to *kubu* or *pondok*, they use expression *ke kubu* or *ke pondok*.

Sanggah or *merajan*, a place of ancestral worship of the family in the old house, is generally developed into *sanggah gede* or *merajan agung*. In addition, all the descendants of the core family gather and carry out religious ceremonies on the *piodalan* day, the day of celebration when routinely the whole family members of one *pamaksan* worship their ancestors. Kinship relationship among the members of *pamaksan* in *pakraman* village is generally known through oral stories and treated by institutionalizing periodic meetings (*pasangkepan* or *simakrama*). In addition, there are also activities of mutual help and visiting each other in the execution of various ceremonies in the growth and the life cycle of their extended families. Equating the day or the *tegak* of *piodalan* ceremonies generally marks the equation of kinship relationship (Geertz, 1975: 80).

In the equality of rights and obligations, it emphasizes the importance of the principle of reciprocity; it is the obligation to give in the hope of receiving the same things. The synergy of these two factors causes indigenous villagers of Bali tend to be homogeneous in the reference of values, characters, and choices to the available alternatives in the relationship of interpreting and understanding the physical social environment. This fact is at least represented from the coveted relationship of the principle of *sagulik*, *saguluk*, *salunglung sabayantaka*. Triguna (1997: 141) mentioned that every *krama* is obliged to maintain the harmony with others by as deliberately as possible trying not to stand out above other *krama*. Conformist and egalitarian actions are always applied to a pattern. It means that it can be carried out again in the future in the same economic way. Habituation will bring the consequences that human beings no longer need to redefine every step-by-step situation. Habituation is the beginning of the institutionalization process. Conformist and egalitarian actions are finally institutionalized, which means that the segment of activities of every *krama* has been placed under social control. The typification of this interaction will be realized because human capabilities can interpret and predict the actions of others, which means that their overall interactions can be foreseen. It is the beginning of the formation of an objective world; a social form that can be passed on to the next generations.

Currently, *banjar* holds a very important role to maintain harmony and the pattern of social relations of Balinese society. They are bound in a social ethic based on *sukerta tata pawongan*. In the life of *krama banjar*, the principle of conformism is also held firmly so that between one *krama banjar* and the others are egalitarian. Currently, *banjar* has the function of binding *krama* in micro-social relations in the body of *pakraman* village. The principle of *mebanjaran* which is held up so far is *pasuka duka*, *gotong royong*, *menyama braya*, in both social and religious activities.

Covarrubias (2013: 65) explains that *banjar* is a cooperative society of people who are obliged to help each other in marriage ceremonies, home parties, especially during the ceremony of *pengabenan*. Here, *banjar* is illustrated as a place of social relationship based

on the religious dimension. It means that after entering into the life of *grhasta asrama*, someone has been legitimate as a concrete *krama* in the *banjar*. They are required to participate in all social, cultural and religious activities in the *banjar*. In short, *banjar* is a binding means of social relationships. Through a symbol named *kulkul*, their social relationships are built to solve the problems and activities that are going to be carried out. The decision is taken based on mutual agreement in a *paruman* or *sangkep banjar*. Starting from the past, *banjar* has become a public space of *krama banjar*. They make *banjar* as a place to discuss, say hello, and make direct contact. *Banjar* became their place to knit social relationships to strengthen *pasukaduka* that becomes the principle of *mebanjaran*.

The Implication of The Re-Actualization of Bale Banjar. Changes in the current era have implications for the pattern of social relationships in *bale banjar*. Durkheim (Ritzer, 2003: 551) stated that modernity is characterized by the weakening of collective consciousness. The re-actualization of *bale banjar* function in Denpasar City which is more on the side of economic effectiveness currently has implication on the weakening of social relationship between *krama banjar*. The intensity of *krama* meetings in the form of *sangkep* activity began to be reduced because *bale banjar* spaces have been used for economic business. This phenomenon also occurs in several *banjar*-s in Denpasar City, such as in Banjar Titih Tengah, Denpasar. Since it is rented to the fruit sellers, there is no more *krama* activity in *bale banjar*, especially in the morning. *Bale banjar* of Titih Tengah is no longer a place where people sit together and have conversation, especially in social activities, because the *bale banjar* space has been rented to the fruit sellers. Similarly, *sangkep banjar* activity is no longer carried out once a month, but it is carried out once in six months. It means that the momentum of *krama banjar* meeting in *sangkep* activity is held only twice a year.

The modernization of *banjar* society in Denpasar has implications for the slackening of traditional social bonds. Formerly, *bale banjar* became an alternative space when there was one *krama banjar* who did not have enough space in carrying out religious activities at home, especially in the wedding ceremony. In that case, *bale banjar* served as an alternative to these activities. But currently, not many people use *bale banjar* for those activity. They choose to close the road to run the *manusa yadnya* activity. It is also found in *Binoh Kelod*. However, the administrators of the *banjar* argued that *bale banjar* has become a cooperative office. A more extreme situation occurs in Banjar Kereneng, Denpasar.

As a system, culture has content or is referred to as the content of culture, hereinafter referred to as cultural universals as initiated by Kluckhohn. The contents of culture, according to Kluckhohn, are live equipment systems, livelihood systems, community systems, languages, arts, knowledge systems, and religious systems. The contents of the culture are also referred to as elements of culture in which will form a cultural system in a society life. Huntington (2003) suggested that culture is the basic values, attitudes, beliefs, orientations, and fundamental presumptions that are prevalent among people in a society. Abdullah (2006: 51) explained that culture is not just as a frame of reference that guides behavior in various social practices, but rather as goods or materials that are useful in the process of self- and group-identification. Culture has established a belief that culture is a blue print that becomes a compass in the course of human life and a guide in their behavior.

From the culture system, the re-actualization of *bale banjar function* which is carried out consciously by *krama banjar* indirectly changes the way of thinking, idea, and public conception about current *bale banjar* function. The idea and conception of agrarian society (pre-modern) about *bale banjar* is very different from modern society. Changes in the way of thinking about the function of *bale banjar* are heavily influenced by the modern culture of a capitalistic economy. The emergence of re-actualization of *bale banjar* Denpasar City became an indisputable fact that there has been a transformation in the level of ideas about Balinese cultures.

Traditional society is a contrast of modern society. Modern society tends to be individualistic, self-, competitive-, and achievement- oriented. In contrast, traditional society sees the importance of inheritance and innate values. In addition, they also tend to be collective and communal character; it is a personal and emotional relationship. The values of

communalism in *bale banjar* are replaced with effective and efficient economic value. The society of Denpasar City not only sees *bale banjar* function in socio-culturally way, but also the function in economically way. Thus, it can be asserted that the re-actualization of *bale banjar* function in Denpasar City affect the way people think, especially the younger generation about *bale banjar*.

The economization of *bale banjar* passed on by the older generation to the younger generation that will take place on an ongoing basis because the effort is considered as legitimate and not prohibited. The younger generation also inherits the idea that *bale banjar* has multifunctional value, in which it is not only socially functioning. Based on this situation, the following time, it is predicted that the re-actualization of *bale banjar* will occur more massif, even up to the village level outside Denpasar City. The re-actualization of *bale banjar* function also changes the culture system or subjective culture of society in *bale banjar*. At least, by using the definition of culture as a system of ideas, the re-actualization of *bale banjar* function in Denpasar City has great implications for the changing system of ideas and the way of view of society about the function of *bale banjar*. The modernization of Denpasar as the capital city of the province with the entry of economic market also change the way of thinking of the society. The economic demands in managing the *banjar* become the trigger of the society to reinterpret *bale banjar* function to be in accordance with the development of the era and be economically profitable.

In addition to the subjective implications of culture, the re-actualization of *bale banjar* function also has implications for the culture in objectively way or material culture. It can be seen from the change of style and appearance of *bale banjar* spaces in Denpasar City. There are increasing numbers of *bale banjar* which are designed into two floors. Commonly, the first floor is used to be managed by *banjar*, either being rented or used as a cooperative office. Meanwhile, the second floor is used for social and cultural activities. The sharing of *bale banjar* flooring is adjusted; the first floor is used for savings and loan cooperative business, while the second floor is used for social activities. *Pura* and *bale kulkul* which are the characteristics of *bale banjar* are no longer placed on the first floor but is placed on the second floor. With the development of such a pattern, it can be analyzed that the *banjar* administrators carry out a cultural adaptation in facing the changing of time. Adaptation involving this material culture can be seen from the efforts of the *banjar* administrators to add *bale banjar* floor.

Changes in cultural elements can be caused by the existence of social movements so that cultural adaptation is required. Inside the cultural adaptation, every individual needs another individual in order to respond and create their social world. The need for the social world reinforces the assumption that humans cannot live well if they are alienated from their social environment. Humans should always try to maintain harmonious relationships with the nature and the environment around them based on the principle of mutual relationships. Adaptation, in this case, means that a system must cope with a serious external situation. The system must adapt to the environment and adapt that environment to the needs. Kaplan (2000: 112) stated that adaptation is a process that connects cultural systems with their environment. Sanderson (2003: 68) mentioned that adaptation is a social trait (nature or social behavior) that arises as a result of the needs, goals, and desires of the individual. Adaptation is closely related to a socio-cultural pattern because new socio-cultural forms as an adaptation. Changes to the form of *bale banjar* development are an adaptation effort of a modern and market-oriented culture. The social and economic burden of *mebanjaran* has implications for the effort to commercialize *bale banjar* spaces so that the income can be used for *banjar* activities. This effort is carried out so that *banjar* and *krama banjar* can survive in the middle of the dynamics of modern life that brings with it new values.

CONCLUSION AND SUGGESTIONS

Based on the above discussion, it can be concluded that the re-actualization of *bale banjar* function in Denpasar City occurs due to the high demand for economic space over the emergence of capitalist economy and the changes of local society's mindset. The occurrence

of re-actualization of *bale banjar* function in Denpasar City cannot be separated from the development of culture and the transformation of awareness of local society in interpreting their traditions and social culture. The society of Denpasar City, with a high level of mobility, understands the modern life that puts forward the practical and efficient aspects. In modern society life, everything is considered to have economic value including cultural objects such as *bale banjar*. They define the cultural capital such as *bale banjar* can be developed as economic capital.

The form of re-actualization of *bale banjar* Denpasar City can be seen from the change in style, the appearance of *bale banjar* spaces that are now widely designed into two floors. The upper floors are used by the community for a gathering place, while the lower floors are used for a place to sell, cooperatives, parking lots, and other centers of economic activity. The change in local society's way of thinking from conventional ways of thinking that puts physical wholeness traditionally has changed into a more modernized way of thinking and putting forward efficient and economical factors in which it leads to their modern, communal change of mindset toward the creative economy. The parameter used is the benefit in the economically way.

The *re-actualization* of *bale banjar* function in Denpasar City has implications for the economy and culture of the local society, including the way of thinking, conception, ideas about culture, and cultural objects. From an economic perspective, it can be seen that currently with the re-actualization of *bale banjar*, the society is thoroughly obtaining financial input from renting the *bale banjar*. There is also a change in the function of *banjar* as a place of beauty course in which they accidentally get the financial input from the emergence of tourist attraction in the form of city tour to the related *banjar*. From the cultural system, the re-actualization of *bale banjar* function which is carried out consciously by *krama banjar* indirectly changes the way of thinking, idea, and public conception about current *bale banjar* function. Furthermore, the implications can also be seen from the material culture. It can be seen from the changes in the style and appearance of *bale banjar* in Denpasar City which has a few color of traditional Balinese architecture. There are a lot of *bale banjar* which is designed into two floors.

The findings in the study include field findings and theoretical findings. Field findings indicates that people in Denpasar City have now been accommodative and adaptive to the changing of times or modernization. The theoretical findings of this study affirmed Sanderson's theoretical mind that socio-cultural evolution has an adaptive sociocultural evolutionary character and affirmed Theodor Adorno's commodification theory that currently many objects have been made as something of more exchange value that is considered a false enlightenment of capitalism.

Based on the findings of the study, it is suggested to the society, especially *krama banjar* to continue to strengthen its cultural identity as a social foundation in *bale banjar*. It is undeniable that the role of *banjar* is very important for Hindus people in Bali especially Denpasar City. *Banjar* must still function as a social space and maintain the culture, tradition, and religion collectively. It can be concluded that *bale banjar* is a stronghold of Hindus people in maintaining cultural and traditional identity. Re-actualization that is carried out as an adaptive and negotiated effort against the development of the times should lead to the spirit of cultural identity preservation, not the contrary, where the re-actualization eliminate the collective values of communal including cultural and religious *bale banjar* in the global era instead.

For the government, both the executive and the legislature, it is suggested to participate in the development of *bale banjar* in Denpasar City so that the efforts that have been developed are not contrary to the cultural values of the local society. It is important because during this time the *banjar* administrators run independently in managing *bale banjar* which then causing a fear to the loss of continuity and sustainability of *mebanjaran*. This attitude is performed because they feel a very heavy burden in managing the *banjar*. The expenditures are considered to be burdensome, especially for *krama banjar* that are categorized into poor households. The obligation to perform religious ceremonies which are the responsibility of the *banjar* is also increasingly urgent. In this case, the government must

take a strategic role because *mekrama banjar* is a cultural asset that must be maintained. If the *banjar* administrators cannot maintain the existence of its function then it is feared that Balinese people will experience a social crisis.

It is suggested to the administrators of *pakraman* village or the board of *pakraman* village to participate in maintaining the tradition of *mekrama banjar* in Denpasar City. In addition, the board of *pakraman* village should provide understanding and socialization of the importance of *mekrama banjar* although the culture of the society in Denpasar City has been advanced. However, if the tradition is faded, it will lead to the loss of the values of Balinese cultural traditions that are caused by globalization.

It is recommended to the tenant to keep the agreement and keep the physical condition of the *banjar* in order to avoid misunderstanding of society for the sake of sustainability of a good relationship in social, cultural and economic ways.

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TAX EVASION, LEVEL OF INTERNET CORPORATE REPORTING AND FIRM VALUE: EVIDENCE FROM INDONESIAN MANUFACTURING FIRMS

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ABSTRACT

As a developing country that accumulates its source of revenue to taxes, Indonesia is not spared from tax compliance issues. The low level of tax compliance indicates a different point of view between the government and the Taxpayer. The low level of tax compliance indicates a different point of view between the government and the Taxpayer. Taxpayers still consider the obligation to pay taxes as an expense that can reduce their income or profits. Therefore, the rational Taxpayer will try to minimize the tax burden. One of them is by doing Tax Evasion. Taxation management is more often done by the Taxpayer Agency, especially the Manufacturing company. This is because the company has a very high business risk. Tax Evasion can increase organizational complexity which in turn can reduce financial transparency. Therefore, companies are required to disclose more information and provide flexible reporting systems that facilitate stakeholders. This encourages companies in the world to take advantage of the development of information technology and interconnection networking through internet corporate reporting. Utilization of internet corporate reporting is expected to increase the value of the company. This study aims to analyze the relationship between the concept of Tax Evasion, the level of internet corporate reporting disclosure, and the firm value. The results showed that the three hypotheses in this study were accepted. Tax Evasion affects the level of internet corporate reporting disclosure. In addition, Tax Evasion also directly or indirectly influence the firm value through the level disclosure of internet corporate reporting.

KEY WORDS

Tax evasion, internet corporate reporting, firm value, taxes.

Tax compliance is a classic problem that faced by tax authorities around the world. Tax compliance refers to the individual's willingness to act according to the laws of taxation and tax administration without law enforcement (James and Alley, 2002). Andreoni, et al. (1998) defines tax compliance as taxpayer awareness to comply with a country's tax regulations. In other words, tax compliance is the implementation of tax obligations which include calculation, payment and tax reporting accurately and on time in accordance with applicable tax law (Roth, et al, 1989).

Tax compliance levels between countries are different. Tax compliance in developed countries like the United States in general is already high. Meanwhile, tax compliance in developing countries such as Indonesia is still relatively low. Directorate General of Taxes data's in 2016 indicates that taxpayer compliance shapes a pattern of a reversed pyramid. The population of individuals and entities reached 249 million and 27.25 million respectively, but registered individual taxpayers only 27.63 million and corporate taxpayers 2.48 million. Meanwhile, the number of tax returns (SPT) reported for individual taxpayers is 10.25 million and corporate taxpayers 0.22 million (pajak.go.id, 2017). In addition, the achievement of tax revenue target is never reached 100%, in 2014 the tax revenue only reached 85.90%, while in 2015 only reached 81.97% (pajak.go.id, 2017).

The low level of tax compliance indicates a different point of view between the government and the Taxpayer. From the macro utopia perspective or the government's point of view, taxation is a citizen's obligation to fund governmental tasks and be the backbone of state revenue for development. On the other hand, based on financial micro perspective or taxpayer's point of view, a tax is considered as a transfer of economic resources from the

private sector to the public sector which results in reduced purchasing power of the taxpayers (Santoso and Rahayu, 2017). Taxpayers still consider the obligation to pay taxes as an expense that can reduce their income or profits. Therefore, a rational Taxpayer will try to minimize his tax burden by doing tax management.

Tax management is more often done by corporate taxpayers. Tax management is a sequence of efforts to implement management functions that include planning, organizing, implementing and controlling for the implementation of taxation rights and obligations to run effectively and efficiently (Pohan, 2013). Tax Planning is an early stage in the implementation of tax management functions in the form of systematic analysis of business strategy and various tax treatment options to generate maximum profit after tax (Scholes et al., 2009). Scholes et al (2009) drafted the tax planning concept based on the dimensions of legality and compliance level. Legality dimension ranges from perfectly legal, gray area, to illegal with the intention of doing fraud. Meanwhile, the dimensions of compliance range from strict compliance, noncompliance with the unfavorable tax system, and noncompliance. Therefore, there are three ways that the Taxpayer can do to reduce the amount of tax burden, namely Tax Avoidance, Tax Evasion, and Tax Saving.

Balakrishnan et al (2010) state that Tax Evasion can increase organizational complexity which in turn can reduce financial transparency. The demand for companies to disclose more information and provide flexible reporting systems to facilitate stakeholders accessing information has encouraged companies in the world to utilize the development of information technology and interconnection networking (Wilis, 2004). The use of the Internet in the corporate information reporting process has an impact on the change of models and channels that companies use to interact or communicate with stakeholders (FASB, 2001). Company information that has been presented in printed form (paper-based corporate reporting) has shifted into web-based corporate reporting information (web-based corporate reporting) that uses digital data as a resource. The process of corporate information communication, both financial information and nonfinancial information related to resource and corporate performance by utilizing web-based applications known as internet corporate reporting (ICR) (Dutta dan Bose, 2007).

Alvarez et al. (2008) state that the motivation of management to disclose information through the website can be explained by Agency Theory. Alvarez et al. (2008) also mention that two other supporting theories, Signaling Theory and Political Cost Theory can be used to explain the practice of ICR conducted by the company. The company objective performing ICR according to agency theory is to reduce the asymmetry of information that occurs between managers and shareholders. In addition, the ICR is expected to control the actions of managers who tend to prioritize their interests rather than owners interests. ICR according to Signaling Theory aims to provide a signal to the capital market in order to reduce the occurrence of information asymmetry, optimize financing costs, and increase firm value. According to the Political Cost Theory, the company conducts ICR to avoid the transfer of corporate wealth to public sector and/or political sector. A voluntary disclosure will encourage good relationships between a company, government and public sector as shown by reduced political costs, such as taxes and certain profits by companies such as subsidies and government actions that support the company.

The practice of ICR has grown rapidly in various countries. The results of Lymer's et al. (1999) research with a sample of 660 companies from 22 countries included into the 30 largest companies on the Dow Jones Global Index show that only 14% of companies that do not have websites and 25% have websites but are not used to report financial information. It shows that companies have considered the Internet as an important medium for disseminating company information to stakeholders (Lakhal dan Boubaker, 2005). However, the level of ICR disclosure still varies between companies in various countries, including in Indonesia. The Almilia (2009) study shows that 213 companies or 62% of the 343 public companies listed on the Indonesia Stock Exchange (IDX) in 2008 have conducted ICR practices with varying disclosure quality. 70% of the 213 companies disclose the complete financial statements and the rest do not disclose complete financial statements. The differences in the level of the disclosure are due to the fact that the ICR is still voluntary and

unregulated by regulators (Craven and Marston, 1999; Oyelere et al., 2003; Marston and Polei, 2004; Khan, 2007; Khlifi and Bouri, 2009).

The variation in the level of ICR disclosure due to the unavailability of such standards has prompted research to provide empirical evidence of the factors influencing management decisions to disclose or not to disclose information on the company's website. Tax Evasion is suspected to be one of the factors driving the company to disclose information through the website more broadly. Companies that implement ICR provide more open information that allows the market to evaluate the future prospects of the company more efficiently (Alvarez et al., 2008). Nevertheless, Hope et al. (2013) research show different results, companies that do Tax Evasion tend to disclose fewer financial information to hide their cheats.

The use of ICR by firms can encourage the market to provide a high price for the company's stock if the company is considered to offer a good future prospect (Alvarez et al., 2008). Hunter and Smith (2007) research prove that the market responds more positively to companies that implement ICR than companies that do not implement ICR. The response is a rise in stock prices for companies that implementing the ICR. That's because investors consider companies that implement ICR provide better protection to investors over the uncertainty of company's condition. The result of this research is supported by Lai et al. (2009) research which proves that companies that utilize ICR have higher abnormal return rate than companies that do not implement ICR. The high stock price indicates the high value given by shareholders and other stakeholders to the company. Silva dan Alves (2004) research on publicly traded companies in Latin America shows that the level of ICR disclosure affects the firm's value calculated using Tobin Q ratio.

Although some researchers have been able to prove that information disclosure through the company's website can increase the value of the company, but some researchers claim that the absence of standards governing the practice of the ICR has the potential to provide information completeness, information comparability, and information reliability (Ashbaugh et al, 1999). The absence of standards also has the potential to create doubts regarding the authenticity and credibility of the information disclosed through the company's website. In addition, the absence of an online information disclosure standard triggers information security issues. Thus, there is still doubt that the ICR is able to provide assurance to investors on the truth and accuracy of information especially that can detect the actions of Tax Evasion conducted by the company. Thus, ICR is considered not able to provide added value for companies that implement it.

THEORY AND HYPOTHESES

Tax evasion refers to the incorrect acts committed by the taxpayer regarding the liability in paying taxes (Suminarsasi & Supriyadi, 2011). Mardiasmo (2009) interpret Tax Evasion as an attempt made by the taxpayer to lighten the tax burden by violating the law. The taxpayers ignore the formal provisions of taxation that become obligatory, falsifying documents, or filling data incompletely and incorrectly. There is a difference between Tax Avoidance and Tax Evasion. Tax Avoidance does not violate legislation and only exploits the weakness gap in the law. While Tax Evasion is an effort undertaken by the company to avoid taxation obligations by violating existing legislation.

The reason there are still many taxpayers perform such actions because the incentives of Tax Evasion exceeds the sanctions or fines to be paid even though the tax law already provides the threat of criminal penalties for taxpayers. According to Suandy (2011) there are several factors that motivate taxpayers to make tax savings with the illegal:

- Amount of tax to be paid. The greater the amount of taxes to be paid, the greater the tendency of taxpayers to commit tax violations;
- The cost to bribe the tax authorities. The smaller the cost to bribe the taxpayer, the greater the tendency of taxpayers to commit offenses;
- Possibility to get caught. The less likely a violation is detected, the greater the inclination of the taxpayer to commit a tax violation;

- Large sanctions. The lighter the sanctions imposed on violations, the greater the taxpayer's tendency to commit tax violations.

Tax Evasion actions are also motivated by the company's efforts to minimize the transfer of resources from the company to the public sector. Resource transfers result in reduced productivity or the ability of firms to generate profits. This can be explained by Agency Theory. Jensen and Meckling (1976) stated that the agency relationship has the potential to create a conflict of interest between agent and principal. The agency relationship arises when one or more principals hire agents to provide services and decision making on behalf of the principal. Conflicts of interest arise because of the different goals of each party based on the position and importance of the company (Alvarez et al., 2008). Managers (agents) appointed by shareholders (principal) are expected to maximize the value of the company so that shareholder wealth can be achieved. However, the agent in running the company's operating activities often acts not in the interests of the principal, but acts to improve his own welfare, among others, in terms of obtaining investment, loans, or compensation contracts. Therefore, the principal will make efforts to achieve the goal, one of them by doing Tax Evasion.

Separation of ownership and control of the company has the potential to generate information asymmetry because agents have more information about the company than the principal. Companies must bear three types of agency costs due to conflict of interest and information asymmetry, i.e. Monitoring Cost, Bonding Cost, and Residual Loss Cost (Jensen dan Meckling, 1976). Therefore, the company will disclose more information than mandatory disclosure to reduce the agency cost (Adina and Ion, 2008). Thus companies will tend to disclose more information when they decide to conduct Tax Evasion. The company not only carries out mandatory disclosure, but also voluntary disclosure. One form of voluntary disclosure is Internet Corporate Reporting (ICR).

Lymer et al. (1999) define the ICR as a reporting process to the public regarding the company's operating activities and financial information by business firms through company websites or communications via internet-based media. Other definitions of ICR are given by Dutta and Bose (2007), namely the process of communicating information, both financial information and nonfinancial information related to resource and company performance by utilizing web-based applications. Meanwhile, according to Marston and Polei (2004), a company is considered to practice ICR if it has distributed financial information and company performance information through the company website. Oyelere et al. (2003) provides a narrower definition of the ICR, the company has done the ICR practice if it provides a set of financial statements or financial highlights on their company's website.

ICR is still voluntary and unregulated (Craven dan Marston, 1999; Oyelere et al., 2003, Marston dan Polei, 2004, Khan, 2007; Khlifi dan Bouri, 2009). Therefore, ICR disclosure is still an incremental disclosure or complementary form of the conventional reporting process (paper-based corporate reporting) (Ashbaugh et al., 1999; Debrecny dan Gray, 1999; Celik et al., 2006; Trabelsi et al., 2008). Thus, the level of ICR disclosure between companies is still varied. In general, the level of ICR disclosure can be assessed through two things, namely the information content and the presentation format (FASB, 2000; Aly et al., 2009; Bhuiyan et al., 2008). Information disclosed through the company's website there are two types, namely financial information and nonfinancial information. Based on this, the first hypothesis in this study are:

H₁: Tax Evasion affects the level of Internet Corporate Reporting disclosure.

Tax evasion is considered a violation of religion or unethical when taxpayers do not pay according to the amount they owe (Hutami, 2012). Tax Evasion by some parties is considered as a signal of a problem in the company's finances. Stakeholder has a tendency to respond negatively to tax evasion action by the company. The negative response demonstrates the declining level of stakeholder confidence in corporate management. The decline in stakeholder trust is reflected in the low value of the company. This is contrary to the company's ultimate goal by the theory of the firm that maximizes the value of the firm by increasing the prosperity of the owner or shareholders (Brigham, 1996 in Wahidahwati, 2002). Maximizing the value of a company is very important for a company because by

maximizing the value of the company means the company will increase the wealth of the owner (shareholder) (Brigham, 1996 in Wahidahwati, 2002). The value of the firm is the investor's perception of the company's success rate as reflected by the stock price (Fama, 1978). If the stock price rises then the value of the company will increase. The increase in the value of the company will be followed by an increase in shareholder wealth because shareholders will gain a high rate of return on rising stock prices. Meanwhile, Husnan (2000: 7) defines the value of the firm as the price that would be paid by the prospective buyer if the company is sold. Thus, the act of Tax Evasion if done not carefully can harm the company that is the decline in the value of the company in the eyes of shareholders. Based on this, the second hypothesis in this study are:

H₂: Tax Evasion affect the value of the company.

For companies that issue shares in the capital market, the traded stock price becomes an indicator of firm value. The stock price is the fair price that can be used as the company's value proxy (Christiawan and Tarigan, 2007). That is because the stock price in the capital market is formed based on an agreement between the demand and supply of shares determined by the market participants in accordance with the information in circulation. Fama (1978) state that the value of firms formed through indicators of the market value of shares is largely determined by investment decisions. Meanwhile, the quality of investor investment decisions is strongly influenced by the quality of corporate information disclosure (Singhvi and Desai, 1971).

From the explanation it can be seen that the quality of corporate information disclosure plays an important role in increasing the value of the company. Singhvi and Desai (1971) mentioned that the high level of corporate transparency indicated by the amount of information available in the market and the ease of accessing information can have an impact on the formation of a company's reputation that indirectly increases the company's value. The effect of the level of disclosure of information on the value of this company can be explained by using Signaling Theory.

Signaling Theory was developed on the basis of the information asymmetry between well informed managers and poorly informed shareholders. Information asymmetry occurs because management does not fully convey information to outsiders. Information asymmetry can affect firm value to the capital market. Therefore, the company will provide a signal to outside parties in the form of comprehensive information including financial information and nonfinancial information to reduce information asymmetry. The availability of information will help the investor to provide a better assessment of the company as indicated by the high value of the company's stock. Signals are actions taken by the company's management to provide guidance to investors about how management views the prospects of the company (Brigham and Houston, 2001 in Mulianti, 2010). A good signal is a signal that can not be imitated by another company that has a lower value. According to Signaling Theory, high-value companies will disclose more quality information to differentiate it from low-value companies, which are low performing companies. From a capital market perspective, a well-performing company will reveal more information to show the company's strength in the capital market. Therefore, companies that conduct Tax Evasion will tend to disclose more information to the public in an effort to maintain its image and credibility in the presence of stakeholders.

The relationship between Tax Evasion, ICR, and firm value can also be explained by Political Cost Theory. According to this theory, large corporations will be heavily publicized and prone to government interference with their business activities because large companies are often associated with high levels of profitability and market concentration levels that lead to monopoly form. The presence of the spotlight from the public resulted in large companies very vulnerable to the occurrence of redistribution of wealth (Watts and Zimmerman, 1978). From a political point of view, some community groups have the ability to lobby in the expropriation, nationalizing, splitting of a company or affecting an industry-related regulation. Therefore, according to political cost theory, large companies are more sensitive than small firms associated with political costs. Political cost arises from the conflict of interest between the company (manager) and the government as an extension of the people who have the

authority to transfer the wealth from the company to the community (Watts and Zimmerman, 1978). A voluntary disclosure will enhance the company's image which will further increase public acceptance and avoid confrontation between the company and the public (Milne, 2002). Voluntary disclosure by corporations shows that companies act responsibly and there is no further legal need to force them to disclose any information.

ICR can be a tool for companies to disclose more information to stakeholders. The purpose of internet use in corporate information reporting activities is to provide comprehensive and timely information to individual investors previously available only to certain parties, such as institutional investors and analysts (Ettredge et al., 2001). The use of ICR is also one of the company's efforts in meeting the demands of stakeholders to provide information that can be accessed by all interested parties. So far, company information is reproduced and disseminated in hard copy. Company information presented in printed form makes it difficult for stakeholders to get it. Therefore, stakeholders need a flexible reporting system in which they can get information in an easier way. Meanwhile, according to Gandia (2008) there are five benefits of ICR: ICR facilitates communications between companies and investors by providing all kinds of company related information, reducing distribution costs and improving the timeliness of corporate information, encouraging shareholder involvement in the life of a company due to internet technology enables companies to communicate online with shareholders and remove geographic barriers that may prevent shareholder participation, help companies to distribute information equally to all stakeholders useful for stock price formation and efficiency of stock market operations, and enhance the credibility of corporate good corporate governance practices so that will improve the company's image in the presence of stakeholders. Based on this, the third hypothesis in this study are:

H₃: Tax Evasion affects the firm value through the level of Internet Corporate Reporting disclosure.

METHODS OF RESEARCH

The population that became the object in this study covers all manufacturing companies listed on the Indonesia Stock Exchange (IDX) in the period 2016. Selection of manufacturing companies as a research population due to manufacturing companies is the largest contributor to tax revenue in Indonesia compared to other sectors until the third quarter 2017 reached Rp 224.95 trillion or about 31% of state revenue (<https://www.merdeka.com>, 2017). The number grew 16.63% over the same period last year. However, the manufacturing company as a taxpayer is often the subject of the Directorate General of Taxes examination because in 2012 there were 4000 foreign investment companies that reported but did not have the amount of tax due to losses for 7 consecutive years (Prakosa, 2014). Determination of the sample using purposive sampling method with criteria: 1) The company has a website used to report financial and/or nonfinancial information, 2) the company's website is not only as a promotional tool, 3) The company's website is not under construction, 4) the company has complete data related to the variables used in the study. The number of samples used in this study is 121 manufacturing companies. Exogenous variable in this research is Tax Evasion (TEV), that is effort done by a taxpayer to alleviate tax burden by violating a law (Mardiasmo, 2009). Tax Evasion is proxied by GAAP ETR, which is an effective tax rate based on applicable financial accounting reporting standards. The low ETR GAAP shows the income tax expense is less than the income before tax. Endogenous variable in this research is the firm value (FIRMVALUE), that is a perception of an investor to a success rate of a company which often associated with share price (Pohan, 2008). Firm value is measured by Tobin's Q Index. The intervening variable in this study is the level of disclosure of ICR, ie the level of completeness of information disclosed by the company through the company website (Homayoun and Rahman, 2009). The level of ICR disclosure in this study was measured using an unregulated index of ICR disclosure by adopting 71 ICR components developed by Marston and Polei (2004) covering the type of information (CONTENT) and presentation media

(PRESENTATION) used by companies to disclose information online. Disclosure index calculation is done by comparing the conformity between the content of information presented on the company website with disclosure items. If the item is disclosed by the company, it is given a score of 1 and if not disclosed a score of 0. Analysis of data used is Structural Model with Observed Variables, ie Path Analysis. Path Analysis is tied to a number of assumptions for parameter estimates to have best linear unbiased estimator properties. Assumptions that must be met in order to obtain unbiased estimates, including multicollinearity test, heterokedasticity test, and normality test. This research uses cross-sectional data so that autocorrelation test is not performed because autocorrelation problem is often found in time series data (Ghozali, 2009: 100). Hypothesis testing in this research is formulated in the form of equation as follows:

$$DSCORE\ ICR_{i,t} = \alpha + P_2 TEV_{i,t} + e_1$$

$$FIRM\ VALUE_{i,t} = \alpha + P_1 TEV_{i,t} + P_3 DSCORE_{i,t} + e_2$$

RESULTS OF STUDY

Analysis of Area of ICR Disclosure. Table 4.1 illustrates the level of ICR disclosure of 121 manufacturing companies being sampled. Based on Table 4.1 it is known that the quality of information disclosure from 121 sample companies varies greatly. Level of disclosure CONTENT has a minimum value of 20.00 and its maximum value of 97.78. Level of disclosure PRESENTATION has a minimum value of 15.38 and its maximum value is 96.15. Meanwhile, the maximum value and minimum value of total disclosure level (DSCORE) are 95.77 and 19.72. This shows that there is a very high variation on the level of information disclosure through the website by manufacturing companies in Indonesia which is indicated by the range of DSCORE, CONTENT, and PRESENTATION ie 76.05, 77.78, and 80.77. Range to PRESENTATION highest, this indicates that there are companies that take advantage of the presentation of the media via the Internet maximally and there are companies that are limited to having a website without exploring the benefits of components in the website that can facilitate stakeholders in finding information. The majority of manufacturing companies only make disclosure of 21.13. Although DSCORE has a high maximum value, the average value of DCSORE reaches only 51.2979. Based on Table 4.1 it is also known that the average value of the disclosure of CONTENT and PRESENTATION also reached only 53.7737 and 47.0119. These conditions indicate that the level of information disclosure online in Indonesia is still relatively low, both from the content of information and how to deliver it. The results also show that manufacturing companies in Indonesia still prioritize the quality of corporate information presented online and have not maximized the advantages of media presentations held by internet technology to disclose information to the public.

Table 1 – The Results of Descriptive Statistic Analysis of Level of ICR Disclosure

n/n		DSCORE	CONTENT	PRESENTATION
N	Valid	121	121	121
	Missing	0	0	0
Mean		51,2979	53,7737	47,0119
Median		47,8900	48,8900	42,3100
Mode		21,13	48,89	23,08
Std. Deviation		22,02292	23,65337	22,64821
Range		76,05	77,78	80,77
Minimum		19,72	20,00	15,38
Maximum		95,77	97,78	96,15

Descriptive Statistics Analysis. A descriptive statistic is a statistic that serves to collect, process, present, and analyze quantitative data descriptively. Specifically, descriptive statistics are used to indicate the amount of data and show the maximum value, minimum

value, mean value, and standard deviation value of each variable used in the study. The number of samples (N) in this study were 121 manufacturing companies listed on the IDX in the period 2016. This study used three types of variables, namely the exogenous, endogenous, and intervening variables. Exogenous variable in this research is Tax Evasion (TEV). Based on Table 4.2, TEV has a minimum value of 0.00 and a maximum value of 2.20 with an average value of 0.2958 and a standard deviation of 0.32039. The standard deviation value greater than the mean value shows the large data distribution between the lowest TEV values and the highest TEV values. The majority of manufacturing companies have a GAAP ETR value of 0.25. The endogenous variable of this study is a firm value (FIRMVALUE). The minimum and maximum values of the FIRMVALUE variable are 0.08 and 2.08 with an average value of 1.0455 and a standard deviation of 0.69919. The standard deviation value that is smaller than the average value indicates that the FIRMVALUE variable has a relatively small difference between each firm. The majority of manufacturing companies have a firm value of 0.50. Meanwhile, the intervening variable in this study is the area of ICR disclosure (DSCORE). DSCORE has a minimum value of 19.72 and a maximum value of 95.77 with an average value of 51.2979 and a standard deviation value of 22.02292. The standard deviation value that is smaller than the average value indicates that the DSCORE variable has a relatively small difference between each company. The majority of manufacturing companies have DSCORE value of 0.25.

Table 2 – The Result of Descriptive Statistic Analysis of Research Variables

n/n		TEV	DSCORE	FIRMVALUE
N	Valid	121	121	121
	Missing	0	0	0
Mean		,2958	51,2979	1,0455
Median		,2500	47,8900	,8000
Mode		,25	21,13	,50
Std. Deviation		,32039	22,02292	,69919
Range		2,20	76,05	2,90
Minimum		,00	19,72	,08
Maximum		2,20	95,77	2,98

Classical Assumption Analysis. The multicollinearity test aims to test whether in the regression model found the existence of a correlation between independent variables. Multicollinearity in this study was detected using Tolerance and Variance Inflation Factor (VIF) values. Common cutoff values used to indicate the presence of multicollinearity is Tolerance values ≤ 0.10 or VIF values ≥ 10 . Based on Table 4.3 it is known that no independent variable has a Tolerance value less than 0.1 and no single independent variable has a VIF value more than 10. This means there is no correlation between independent variables. Thus, it can be concluded that there is no multicollinearity among independent variables in this research model.

Table 3 – Multicollonearity Test Results

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	,798	,178		4,473	,000		
1 TEV	-,334	,196	-,153	-1,704	,091	,964	1,038
DSCORE	,007	,003	,213	2,368	,020	,964	1,038

a. Dependent Variable: FIRMVALUE

The heteroskedasticity test aims to test whether in the regression model there is a variance inequality of the residual one observation to another observation. This study uses Glejser test to detect the presence or absence of heterokedastisitas. Based on Table 4.4 it is known that none of the independent variables that are a statistically significant influence on

the dependent variable, the absolute residual value (AbsUt). This is evident from the probability significance of all independent variables that are above the 5% confidence level. Thus, it can be concluded that the regression model is free from the problem of heteroskedasticity.

Table 4 – Heteroscedasticity Test Results

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,434	,100		4,325	,000
1 TEV	-,062	,110	-,052	-,562	,575
DSCORE	,003	,002	,149	1,610	,110

a. Dependent Variable: AbsUt

The normality test aims to test whether in the regression model, the residual or residual variable has a normal distribution. This study uses Kolmogorov-Smirnov test with 5% significance level to detect presence or absence of normality. Data is said to be normal if the value of significance (p-value) for each variable analyzed is greater than 0.05. The result of normality test in Table 4.5 shows that Kolmogorov-Smirnov value is 0.155 and significant at 0.05 because p-value is 0.00 (<0.05). Due to the significance value less than 0.05, it can be concluded that the nuisance variable or residual value of the research model is not normally distributed.

Table 5 – Normality Test Results

One-Sample Kolmogorov-Smirnov Test

n/n		Unstandardized Residual
N		121
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	,67019827
Most Extreme Differences	Absolute	,155
	Positive	,155
	Negative	-,086
Test Statistic		,155
Asymp. Sig. (2-tailed)		,000 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Table 6 – Normality Test Results after Transformation

One-Sample Kolmogorov-Smirnov Test

n/n		Unstandardized Residual
N		121
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	,68949955
Most Extreme Differences	Absolute	,076
	Positive	,054
	Negative	-,076
Test Statistic		,076
Asymp. Sig. (2-tailed)		,083 ^c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

To overcome the problem of normality, transformed data into the form of natural logarithm with a semilog regression model. Based on Table 4.6 it is known that the normality test using the semilog regression model where only the dependent variable data, ie the

variable of firm value (FIRMVALUE) transformed into the form of natural logarithm able to make the research model free from the problem of normality. This is indicated by the Kolmogrov-Smirnov value of 0.076 and not significant at 0.05 because p-value has a value greater than 0.05, which is 0.083.

Hypothesis Testing Results. The first time, the calculation of path coefficients to determine whether the hypothesis in this study accepted or rejected. The calculation of path coefficient in this research is as follows:

Coefficient of Line Model 1:

Referring to the output of Regression Model 1 shown in Table 4.7, it can be seen that the significance value of the TEV variable is less than 0.05, ie 0.036. This result gives the conclusion that Regression Model 1, ie Tax Evasion variable (TEV) has significant effect on ICR (DSCORE) disclosure level. The unstandardized beta coefficient value of TEV in Table 5.7 is -13.101. This number represents the path or path value of P2. The value of R Square (R²) shown in Table 4.8 is 0.036. This indicates that the contribution or contribution of TEV influence to DSCORE is 3.60% while the remaining 96.40% is the contribution of other variables not included in this research. Meanwhile, for value e₁ can be searched with the formula $e_1 = \sqrt{(1-0,036)} = 0,98184$.

Table 7 – Coefficient Test Result of Model Path 1

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	55,173	2,691		20,501	,000
TEV	-13,101	6,186	-,191	-2,118	,036

a. Dependent Variable: DSCORE

Table 8 – Test Results Influence Model 1

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,191 ^a	,036	,028	21,70988

a. Predictors: (Constant), TEV

Coefficient of Line Model 2:

Referring to the output of Regression Model 2 shown in Table 4.9, it can be seen that the significance value of the TEV and DSCORE variables is less than 0.05, ie 0.017 and 0.031. This result gives the conclusion that Regression Model 2, ie Tax Evasion (TEV) variable and ICR (DSCORE) disclosure area have significant effect to firm value (FIRMVALUE). The unstandardized coefficients of beta values of TEV and DSCORE are respectively in Table 4.9 of -0.486 and 0.006. Unstandardized beta TEV represents path or path value P1 and unstandardized number beta DSCORE is path P3. The value of R Square (R²) contained in Table 4.10 is 0.085. This shows that contribution or contribution of influence of TEV and DSCORE to FIRMVALUE is 8,50% while the rest 96,40% is contribution from other variables not included in this research. Meanwhile, for the value of e₂ can be searched with the formula $e_1 = \sqrt{(1-0.085)} = 0.95656$.

Table 9 – Coefficient Test Result of Model 2]

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-,376	,183		-2,048	,043
1 TEV	-,486	,202	-,214	-2,411	,017
DSCORE	,006	,003	,195	2,190	,031

a. Dependent Variable: LnFIRMVALUE

Table 10 – Test Result Influence Model 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316 ^a	.100	.085	.69532

a. Predictors: (Constant), DSCORE, TEV

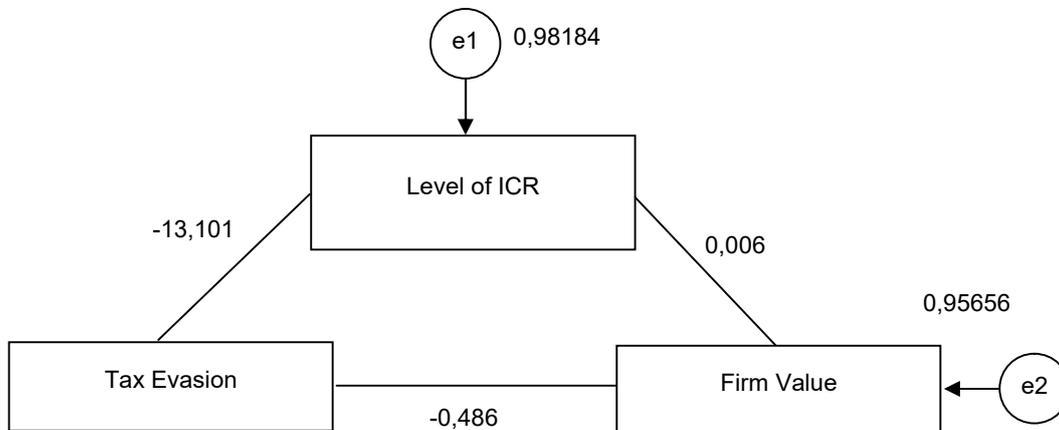


Figure 1 – Result of Path Coefficient

The path analysis results show that TEV has an immediate effect on FIRMVALUE and indirectly affects FIRMVALUE via DSCORE. In other words, the first, second, and third hypothesis in this study is accepted. The magnitude of the direct effect is -13.101, whereas the magnitude of indirect influence is calculated by multiplying the indirect coefficient, ie $P2 \times P3 = (-13.101) \times (0.006) = -0.07861$ or the total effect of TEV to DSCORE is $P1 + (P2 \times P3) = -0.486 + (-13.101 \times 0.006) = -0.564606$.

DISCUSSION OF RESULTS

Effect of Tax Evasion on the level of Internet Corporate Reporting disclosure. Based on the results of hypothesis testing, the first hypothesis (H1) which state that the Tax Evasion effect on the level of disclosure of Internet Corporate Reporting is accepted. The effect of TEV on DSCORE is 3.60%. This is indicated by the magnitude of R Square (R²) as shown in Table 4.8, which is 0,036. Meanwhile, based on the unstandardized beta coefficient value of TEV in Table 4.7 of -13.101 indicates that the influence of TEV on DSCORE is negative. That is, the more often companies do Tax Evasion then the company will be more narrow type of information (content) and presentation method used by companies to disclose information through the website. The results of this study support the research of Hope et al. (2013), ie companies that do tax evasion tend to disclose fewer financial information to hide their cheats.

However, the results of this study contrasted with Agency theory, Signaling Theory, and Political cost theory. According to agency theory, ICR practice is the company's effort to reduce information asymmetry. The information presented on the company's website will reduce the uncertainty about the prospects of the company to come. However, companies will disclose less information if they take tax evasion because disclosure of too much information will be a competitive disadvantage for them. Meanwhile, based on Signaling Theory, management will have a stronger push to disseminate company information, especially financial information in order to increase investor confidence when the company performs well (Oyelere et al., 2003). A healthy corporate financial condition is a positive signal for external parties, especially for investors. Tax evasion actions by the company can be a signal that the company's financial condition is not good or in other words indicates the inability of the company in managing its finances.

Therefore, the wider the company discloses the information, the market will catch it as a negative signal. According to Political Cost Theory, the company will disclose more information to reduce political costs, one of which is taxes and increases public support for the company's operations. Political cost arises from the conflict of interest between the company (manager) and the government as an extension of the people who have the authority to transfer the wealth from the company to the community (Watts and Zimmerman, 1978). A voluntary disclosure will enhance the company's image which will further increase public acceptance and avoid confrontation between the company and the public (Milne, 2002). Voluntary disclosure by corporations shows that companies act responsibly and there is no further legal need to force them to disclose any information. This is in contrast to the company's tax evasion. The more companies disclose the information, the government will easily find the fraudulent actions that the company did and impose sanctions in the form of fines or interest that will add to the company's political costs.

Effect of Tax Evasion on firm value. Based on the results of hypothesis testing, the second hypothesis (H2) which state that the Tax Evasion effect on firm value is accepted. This is indicated by a significance number that is below 0.05, ie 0.017. Meanwhile, based on the unstandardized beta coefficient value of TEV in Table 4.9 of -0.486 indicates that the effect of TEV on FIRMVALUE is negative. That is, the more companies do Tax Evasion then the value of the company will be smaller which one of them is reflected in the low stock price. The results of this study support Agency theory, Signaling Theory, and Political cost theory. According to Agency theory, the manager (agent) who is appointed by the shareholder (principal) is expected to act to maximize the value of the company so that shareholder wealth can be achieved. However, the agent in running the company's operating activities often acts not for the interests of the principal, but acts to improve his own welfare, among others, one of them is by doing Tax Evasion to maximize corporate profits. Separation of ownership and control of the company also has the potential to generate information asymmetry because agents have more information about the company than the principal. This can ultimately lead to a decrease in stakeholder trust. According to Signaling Theory Tax Evasion actions detected by the market will decrease the value of the company through a decrease in nominal value, intrinsic value, liquidation value, book value, and market value (Christiawan and Tarigan, 2007). Meanwhile, according to Political cost theory the action of Tax Evasion resulted in a confrontation between the company and the public (Milne, 2002). This can lead to a potential decline in firm value.

Tax Evasion affects the value of the company through the extensive disclosure of Internet Corporate Reporting. Based on the results of hypothesis testing, the second hypothesis (H3) which state that the Tax Evasion affect the value of the company in the area of Internet Corporate Reporting disclosure is accepted. The amount of indirect influence of TEV to FIRM VALUE via DSCORE is -0.564606. Table 4.9 also shows a positive influence between DSCORE and FIRMVALUE. That is, although the choice of companies to disclose more information online can increase the value of the company, but when companies do Tax Evasion companies choose to disclose a little information to the public. According to Signaling Theory, the company will provide information widely and easily accessible to the public to provide a positive signal to the market for effective management performance and the company's ability to ensure the sustainability of the company so that investors are interested to invest their capital into the company. Therefore, the market can interpret as bad news if the company slightly disclose the information because it is a signal that the company's performance is bad. The existence of information asymmetry between the principle and the agent results in arbitrary activities of agents to perform Tax Avoidance in order to maximize profits or to improve their own welfare, among others in terms of obtaining investment, loans, or compensation contracts. This can be reduced by encouraging agents to disclose more information to the public. The broader the information disclosed to the public will be to increase stakeholder trust so as to increase the value of the company

CONCLUSION

This study aims to examine the direct effect of Tax Evasion on firm value and indirect Tax Evasion's influence on firm value through the level of Internet Corporate Reporting. The test results showed that the three hypotheses in this study were accepted. Thus, it can be concluded that the choice of companies to disclose information more widely online can increase the value of the company, but when companies take action Tax Evasion companies choose to disclose a little information to the public. This is done to hide the illegal actions that the company is doing. Based on this it should be the government or the board of accounting standards to make policies that standardize the reporting of information through the website. In addition to the ICR standards, governments may also consider requiring companies to disclose information through the website. This is possible given the use of the Internet as a means of obtaining information is very wide. The existence of ICR standards and rules that require companies to disclose information online is expected to eliminate the Tax Evasion action by the company. This study has limitations that only look at the relationship between Tax Evasion variable, ICR, and firm value. Going forward, this research can be developed using a qualitative approach to see how far the broad role of ICR disclosure in reducing tax evasion. In addition, it can also be analyzed what information should be disclosed online in order to eliminate tax evasion.

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FACTORS INFLUENCING PRODUCTION DECISIONS AND HOUSEHOLD CONSUMPTION OF SUGAR CANE (*SACCHARUM OFFICINARUM*) FARMERS IN INDONESIA

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ABSTRACT

This research aims to determine factors influencing economic decision-making of sugarcane farmers' household in terms of production, labor allocation and consumption. This research was conducted in Malang, East Java, Indonesia. The number of respondents, based on the ratoon rate, was 172 sugarcane households. Parameter estimation was conducted using two-stage least square method. Parameter estimation showed that non family labor allocation of sugarcane farming was influenced by sugarcane farm, the use of ZA fertilizer, wage rate of nonfamily woman labor of sugarcane farming, and ratoon frequency. Family labor allocation of sugarcane farming was actually influenced by sugarcane farm, a family labor of sugarcane farming, total family members, and ratoon frequency.

KEY WORDS

Household economics, production, sugarcane, labor allocation.

Sugarcane is a sugar-producing plant that has seasonal growth because influenced by climate. Sugar production trend in 1993/94 in Indonesia significantly decreased due to the impact of drought (T.M.Hess *et al.*, 2016). As a sugar-producing plant which has not been replaced, sugarcane is an important crop globally. While the effect of sugar consumption is highly debated Ruxton *et al.* (as cited in T.M.Hess *et al.*, 2016). In 2013, Brazil and India globally account for 39% and 18% of sugarcane production (FAOSTAT, 2015). The largest sugarcane producers in the world are Brazil, Thailand, and Australia. While Indonesia is a producer-consumer country.

This is indicated by the imported value of plantation commodities that packed the domestic market of 32.49% with a growing volume of 26.50%. Most imported plantation commodity is refined sugar crystal (Director General of Plantation, 2015). According to the Ministry of Industry (2016), the increase of sugar import was caused by the sugar needs for household consumption which reached 2.7 million tons and 3.5 million tons of refined sugar for food and beverage industry so that the total demand for sugar in 2017 reached up to 6.2 million tons, while production in 2016 was only 2.2 million tons.

Production center of sugarcane in Indonesia spread in several provinces and the largest sugarcane plantation development was done by society under the condition of not using technology yet that can optimize production input. According to the data from the Ministry of Agriculture (2016), the province with the largest harvest area and sugarcane producer during the 2012-2016 period was East Java which was recorded to have an area of land by 209.33 ha or 45.06% of a total land area of sugarcane plantations in Indonesia. Moreover, the average production was 1.28 million tons per year, so this production contributes 49.14% of annual Indonesia's sugar cane production. In addition, Malang Regency, with most of ratoon cane development, was listed as an area which has plantation land up to 44, 057 Ha.

This condition makes sugarcane plantations the main livelihood of the farmers household. However, in 2014, with plantation area of 3, 786 ha, its productivity reached 160 tons/ha, lower than in 2013 with plantation area by 2, 705 hectares and the productivity by 180 tons/ha (Agricultural Extension Center 2015). As a result, the accretion of plantation area did not affect the increase of sugarcane production, according to Fitriani (2013) the intensity of activity in sugarcane farm was also determined by the availability of capital, production input, cultivation technology and certainty of sugarcane selling price at the factory level, in addition was also determined by external factors such as wages, input price, output price and farmers' awareness of the importance of the cultivated commodities. According to Khumbakar (2002), agricultural production was highly dependent on the managerial ability of farmers in farming. Farmers household acts as a producer and consumer, according to Becker (1965) when acting as producer, a farmer maximizes profits while acting as a consumer, a farmer maximizes the satisfaction of goods consumed and the allocation of spare time. Total household time was allocated to combine the production of goods and leisure, for agriculture or off-farm (Barnum and Square 1979) then Ellis (1988) states that households have the freedom to work in the household (in the family) and to hire labor from outside the household with the applicable wage rates.

So that fluctuating sugarcane productivity condition makes sugarcane farmers have a tendency of simultaneous-decision making pattern between production and consumption activity. Thus the economic decision making of the household of sugarcane farmers cannot be analyzed partially. As the previous research conducted by Ratna (2007) who analyzed the household economics of crop farmers. Hanani and Yonekure (2009); Fitriani (2013); Leki *et.al* (2016); Makki (2014) analyze household economics decision making to build household economics model.

Based on the description above, this research is important to be done to identify factors influencing production, labor allocation and consumption as household economics decision making of a sugarcane farmer.

METHODS OF RESEARCH

Research Location. This research was conducted purposively in Malang Regency of East Java Indonesia. This location was chosen because Malang has the largest sugarcane plantation and there are 2 sugar factories there. Through the non-proportioned stratified random sampling, ratoons level was divided into a level I for 3-4 ratoons, level II for 5-10 ratoons and level III > 10 ratoons. Total ratoons selected were 172 sugarcane farmers

Data Analysis Method. The analysis used to fulfill the research objectives was an estimation of a production function, labor allocation and sugarcane farmers consumption using simultaneous equation (2 SLS). By the help of software (SAS/ETS) version 9.1, it was then specifically divided into four blocks of structural and identity equations, namely (a) labor allocation block comprised the use of family and non-family labor for sugarcane and non-sugarcane farming (b) production and production facility block meant production of sugarcane, non-sugarcane, ZA fertilizer and NPK fertilizer (c) income block consisted of sugarcane farming income, non-sugarcane farming income, total income of sugarcane farmers household and surplus of household income of sugarcane farmers (d) block of households spending of sugarcane farmers, namely the food consumption expenditure and non-food consumption expenditure. The estimation of the model as a whole was part of the economic decision-making model (Bagi and Singh, 1974). In this study, household economics decision making of sugarcane farmers was classified into labor allocation, production, and production facility, income and household expenditure of sugarcane farmers in form of equation as follows:

a) Production Facility equation and Labor Allocation:

$$NFLSF = a_0 + a_1 SFA + a_2 NFM + a_3 UZAF + a_4 WNFLSFw + a_5 \text{ dummy FR} + U_1$$

$$FLSF = b_0 + b_1 SFA + b_2 FLnSF + b_3 NFM + b_4 \text{ dummy FR} + U_2$$

$$TLSF = NFLSF + FLSF$$

$$NFLnSF = c_0 + c_1 TSFI + c_2 TLnSF + c_3 FE + U_3$$

$$FLnSF = d_0 + d_1 NSFA + d_1 QNSF + d_2 WNFLSFw + d_3 FLSF + U_4$$

$$TLnSF = NFLnSF + FLnSF$$

b) Production Equation:

$$UZAF = e_0 + e_1 CSF + e_2 PZAF + e_3 NFLSF + e_4 \text{ dummy FR} + U_5$$

$$UPhF = f_0 + f_1 SFA + f_2 PPhF + f_3 UZAF + f_4 \text{ dummy FR} + U_6$$

$$QS = g_0 + g_1 SFA + g_2 TLSF + g_3 UPhF + g_4 ESH + g_5 \text{ dummy FR} + U_7$$

$$QNSF = h_0 + h_1 NSFA + h_2 TLnSF + h_3 SSFH + h_4 NFM + U_8$$

c) Income equation:

$$SFI = VSQ - CSF$$

$$TSFI = PUTb + PUNTb$$

$$NSFI = i_0 + i_1 NSFA + i_2 TLnSF + i_3 NFM + U_9$$

$$SSFH = TSFI - ESH$$

d) Household Spending Equation:

$$EF = j_0 + j_1 SSFH + j_2 NFM + j_3 EE + U_{10}$$

$$ENF = k_0 + k_1 NSFI + k_2 TSFI + k_3 NFM + k_4 EE + U_{11}$$

$$ESH = EF + ENF + EE$$

Model identification. According to Koutsoyiannis (1987), in the event of building a model, the process of identifying structural models should take into account (1) the total number of variables in the model (2) the number of variables in each equation (3) the number of predetermined variables in the model and (4) the number of predetermined variables in each equation. So the requirement of identification conditions was achieved if $(K-M) \geq (G-1)$. The equation model of this research consisted of 11 structural equations and 6 identity equations. With the total variables 27 ($K = 27$) and $M = 6$, $G = 17$ then the result of equation model was *over-identified*, because $(K-M)$ was greater than $(G-1)$. Variable notation description of equation model was shown in table 8.

RESULTS AND DISCUSSION

Household economics-decision making of sugarcane farmers. Most of sugarcane farming activities in the research area was people's sugarcane of dry land farming. Cultivation of dry land allows ratoons system application. Ratoons was a sugarcane crop that was previously cut, then the stubble was cut right or lower than the surface of the bund then managed to produce (Koswara in Angga Naruputro, 2009). In general, ratoon cane has lower productivity than the planting cane. As a result, the decision of ratoons was not separated from the households decision-making of sugarcane farmers, as well as its relation to the replanting that requires high farming costs

Household income source for sugarcane farmers. Sources of income were comprised income from sugarcane and non-sugarcane farming, it was in line with Rochaeni and Lakollo EM's (2005) research. Sugarcane farming income contributes greatly because sugarcane was the main livelihood. In addition, the research location was historical area and expansion area shown by the existence of two sugar factories, while income from non-sugarcane farming system comes from food crop and horticultural crops. The average income of sugarcane farmers household can be seen on.

Table 1 – Source of income and average household income of ratoon cane farmers in Malang District, Indonesia, 2016

No.	Source of income	Value (Rp/Year)	Percentage (%)
1	Sugarcane Farming	36.517.830	87,56
2	Non Sugarcane Farming	5.186.196	12,44
	Total	41.704.026	100

Source: Primary Data (2017), processed.

Household labor allocation of sugarcane farmers. Sugarcane farmers household devotes their labor for *on-farm* activity, that was sugarcane and non-sugarcane farming. The allocation of non-sugarcane farming was the real total time of family labor allocated to

farming activities excluding sugar cane Fadilla *et.al* (2017) such as rice, corn, chili, and papaya. The table shows that the household labor allocates the time in the sugarcane farming activity, considering the farming as the main livelihood. Allocation of the household labor of sugarcane farmers was on.

Table 2 – Average of household labor allocation of sugarcane farmers in Malang District, Indonesia, 2016

No.	Average of household labor of Sugarcane farmers	Value (HOK)	Percentage (%)
1	Sugarcane Farming	269, 39	78,28
2	Non Sugarcane Farming	74, 75	21,72
	Total	343, 14	100

Source: Primary Data (2017), processed.

Household spending allocation of sugarcane farmers. Household income of sugarcane farmers was allocated to household spending, i.e. food, non-food and energy consumption. Table 3 indicates that food consumption expenditure has the greatest percentage, in line with Sekhampu *et.al* (2013) stating that lower middle-income household spending was dominated by basic needs. Non-food consumption includes the purchase of clothing, recreation, communication, social participation, and energy.

Table 3 – Average expenditure on food and non-food of sugarcane farmers in Malang District, Indonesia, 2016

No.	Expenditure of household of Sugarcane farmers	Value (Rp/Year)	Percentage (%)
1.	Expenditure on food	9.165.837	85,34
2.	Expenditure non food	1.574.500	14,66
	Total	10.740.337	100

Source: Primary Data (2017), processed.

Estimation of factor parameters that influence production and consumption decision-making of sugarcane household. Estimation results indicate that the model has met the criteria of economics, statistics, and econometrics (Koutsoyiannis, 1977). The value of the coefficient of determination (R^2) 50% has a high value, the higher (R^2), the better the structural equation, because the diversity of endogenous variables can be explained by exogenous variables. The result of statistical test F showed that all structural equations have a probability F under the real level of 10%. Thus the exogenous variables were together able to explain the endogenous variables. The estimation of sugarcane farming parameter and equation model was as follows;

Blocks of labor allocation for sugarcane farming. The formation of the labor in sugarcane farming consisted of family and non-family labor. The analysis result of family labor allocation of sugarcane farming was positively influenced by variables of sugarcane farm, the use of fertilizer ZA, wages of non-family woman labor of sugarcane farming and ratoons frequency dummy and significant at the level of real 10%, except family member variable of sugarcane farmers family. Sugarcane farming activities are labor-intensive so that the addition of family members did not significantly affect the use of the hired workers or non-family labor. In line with the research done by Chang *et.al* (2011) that household demands non family labor will not decrease unless the family labor is complimentary. The use of the family labor of sugarcane farmers household was significantly and positively influenced by the variable of sugarcane farm, the number of family members and the dummy of ratoons frequency, while the family labor of sugarcane farms has a significant and negative influence. Therefore, the addition of the use of family labor in the non-sugarcane farm of 1 HOK (man-day) will reduce the use of family labor in sugar cane farm. Food crops and horticulture activity required the sugarcane farmers household to be intensive because having a high production risk trend.

Non-sugarcane labor allocation. Labor allocation of this activity was divided into family and non-family labor. Factors that influence the use of the non-family labor of sugarcane

farm were the total non-sugarcane labor with a positive and significant response. When there was 1% increase in total labor allocation non-sugarcane so non-family and non-sugarcane labor increased 0, 99 HOK (man-day). Non-family labor of non-sugarcane farming were substituted to the family labor allocation. While the total income variable of sugarcane farming household and food consumption expenditure were negative and insignificant to non-sugarcane and non-family labor allocation. Family labor allocation of non-sugarcane farming, non-sugarcane farm, and non-sugarcane production variable have a positive and significant influence on the real level of 10%. In addition to growing sugarcane, farmers also cultivate food crops and horticulture as a source of non-sugarcane income. While the non-family woman labor wage of sugarcane farming and family labor of sugarcane farming was not significant to the family labor allocation in the non-cane farming system. The estimation result of labor allocation of sugarcane farmers household was shown at table 4.

Table 4 – The results of the estimation parameters of labor allocation of sugarcane and non sugarcane farming, Malang Regency, Indonesia 2016

No	Variable	Estimation Parameter	Prob > t	Explanatory variables
1.	Non family labor of sugarcane farming (NFLSF)			
	Intercept	-80, 9974	0.0053	
	SFA	286, 0805	<.0001	Sugarcane farm area
	NFM	1, 165513	0.8526	Number of family member
	UZAF	0, 123659	<.0001	Use of ZA fertilizer
	WNFLSFw	0, 000020	0.0002	Wages of woman non-family labor of sugarcane farming
	FR	74, 03979	0.0008	dummy ratoon frequency
2.	Family labor of sugarcane farming (FLSF)			
	Intercept	-14, 8794	0.0001	
	SFA	51, 07299	<.0001	Sugarcane farming area
	FLnSF	-0, 09640	0.0237	Family labor of non-sugarcane farming
	NFM	3, 952290	<.0001	Number of family member
	FR	14, 12867	<.0001	Dummy ratoon frequency
3.	Non family labor of non-sugarcane farming (NFLnSF)			
	Intercept	-11, 1801	0.2559	
	TSFI	-1, 47E-07	0.1749	Total of household sugarcane farming income
	TNFLnSF	0, 996489	<.0001	Total Non family labor of non-sugarcane farming
	ENF	-1, 15E-06	0, 2085	Non food expenditure
4.	Family labor of non-sugarcane farming (FLnSF)			
	Intercept	4, 593459	0, 0890	
	NSFA	80, 81361	<.0001	Non sugarcane farming area
	QNSF	0, 003206	0, 0068	Non-sugarcane production
	WNFLSFw	-3, 96E-07	0.6702	Wages of non-family woman labor of sugarcane farming
	FLSF	-0, 03813	0, 3885	Family labor of sugarcane farming

Note: significant at 10%.

Block production and production facilities of sugarcane farming. The equation of the amount of fertilizer ZA use was influenced by sugarcane farming cost variable, fertilizer ZA price, non-family labor of sugarcane farming and a dummy of ratoons frequency. All exogenous variables have a positive effect on the amount of fertilizer ZA use except ratoons frequency dummy which has a negative and significant influence. The cost of sugarcane farming was the cost incurred by sugarcane farmers household in the cultivation of sugarcane, the high cost of farming was shown by the increasing number of total inputs. The price of fertilizer ZA has an effect on the amount of fertilizer ZA use, in sugarcane farming, fertilizer ZA was one of useful single fertilizer to result in optimum production so that in its use the farmer will not decrease the amount as accordingly. While non family labor variable has a positive influence on the use of fertilizer ZA but not significant at $\alpha = 10\%$, sugarcane farming labor consists of family and nonfamily labor substitution whose characteristic was a substitution. While the dummy variable of ratoons frequency has a negative and significant coefficient sign. Theoretically, the higher the ratoon frequency, the higher the application of fertilizer ZA, but empirically sugarcane farmers applied ZA fertilizer in accordance with the dose recommended by PG of 6 - 7 ku / ha. The research area was a cultivation of dry land

cane with ratoons cultivation. In line with the research results of Angga Naruputro (2009) the addition of fertilizer ZA dose for ratoons cane on dry land will have a little effect even not have an influence on the addition of sugarcane weight.

For the use of phonska fertilizer based on parameter estimation results, the influential variables were sugarcane farm, Phonska fertilizer price, ZA fertilizer application and actual ratoons frequency dummy. A very positive and significant variable was the use of ZA fertilizer. ZA and Phonska fertilizers were complementary like the research result by Fadilla (2017) that in sugarcane farming, Phonska and ZA fertilizers were complementary in a certain proportion to obtain optimal production, while ratoons frequency dummy has a negative but not significant influence.

Estimation result of parameters for sugarcane production was influenced jointly by the variable of sugarcane farming area, a total labor of sugarcane farming, Phonska fertilizer use, the household expenditure of sugarcane farmers and ratoons frequency *dummy*. All variables were positive and in accordance with the expectations except the use of Phonska fertilizer was negative but significant, because it was complimentary with ZA fertilizer then the application should be combined with ZA fertilizer, in addition, the dosage of Phonska fertilizer was in accordance with the recommended, that was 4 ku / ha. While the dummy frequency of ratoons was negative and not significant. Partially, the most influential variable affecting sugarcane production were sugarcane farming area. Like the research conducted by M.Dina et.al (2011) that group of sugarcane farmers with the narrow land area was not economically efficient compared to middle and big farmer group.

For non-sugarcane production, the positive variables included non-sugarcane farming area, total non-sugarcane labor, a surplus of sugarcane farmers household and the number of household members of sugarcane farmer household. However, a not-significant variable was the number of family members of sugarcane farming. For the estimation result of production and production of sugarcane was found at table 5.

Table 5 – The result of estimation of production block and production facility of sugarcane farming, Malang Regency, Indonesia, 2016

No	Variable	Estimation Parameter	Prob > t	Explanatory variables
1.	Use of ZA Fertilizer (UZAF)			
	Intercept	- 246, 429	0.2690	
	CSF	0.000024	0.0005	Cost of sugarcane farming
	PZAF	0, 260250	0.0686	Price of ZA fertilizer
	NFLSF	0, 204737	0.7028	Non family labor of sugarcane farming
	FR	- 238, 364	0.0121	dummy ratoon frequency
2.	Use of Phonska Sugarcane Farming (UPhF)			
	Intercept	-148.576	0.7871	
	SFA	35.35719	0.7141	Sugarcane farming area
	PPhF	0, 155819	0.5417	Price of Phonska fertilizer
	UZAF	0, 322499	<.0001	Use of ZA fertilizer
	FR	-81, 7205	0.3152	Dummy ratoon frequency
3.	Sugarcane production (QS)			
	Intercept	6, 199911	0.3192	
	SFA	82, 94920	<.0001	Sugarcane farming area
	TLSF	0, 014651	0.4488	Total labor of sugarcane farming
	UPhF	-0, 02287	0.0159	Use of Phonska fertilizer
	ESH	1, 156E-06	0.0072	Sugarcane household expenditure
	FR	-0, 74496	0.8479	Dummy ratoon frequency
4.	Non sugarcane production (QNSF)			
	Intercept	-108, 010	0.8555	
	NSFA	3394, 166	<.0001	Non sugarcane farming area
	TLnSF	0, 183588	0.0747	Total labor of non sugarcane farming
	SSFH	0, 000011	0.0494	Surplus of sugarcane farmers households
	NFM	61, 25451	0.5973	Number of family member

Note: significant at 10%.

Block of household income of cane farming. The equation for farming income was the identity equation which was the result of sugar cane production value with the cost of sugarcane farming. The equation of sugarcane production value comes from sugar cane production (QS) multiplied by the price of sugarcane. Thus, sugarcane farming income resulted from the reduction of sugar production value and sugarcane farming cost. Total household income of sugarcane farmers was the sum of sugarcane farming income and non-sugarcane farming income (NSFI). Similarly for the Surplus of Sugarcane Farmers Households (SSFH) which was the difference between the total income of sugarcane farm households with the expenditure of sugarcane households. The structural equation of non-sugarcane farming income was influenced by non-sugarcane farming area, non-sugarcane farm labor, the number of family member of a sugarcane farmer. The result of parameter estimation, a non-sugarcane farming land variable has a positive and significant influence on non-sugarcane farming income, while the total labor of non-sugarcane was positive but not significant and the number of family member of sugarcane farmers a negative and unreal effect. The estimation of household income parameters of sugarcane farmer was shown on table 6.

Block of household expenditure of sugarcane farmers. Household expenditure of sugarcane farmers consists of food, non-food and energy expenditure. The result of estimation of parameters of food expenditure was influenced by a surplus of farmers household, the number of family member of sugarcane farmer and household energy expenditure of sugarcane farmer. All of these variables were positive and significant, when the surplus of sugarcane farmer household increased, food expenditure also increased. In accordance with the research result of Fitriani (2013) that the results of estimation of income variables were positive and significant, the sign of parameters of income variables was economically in accordance with the positive theory influencing food consumption. Furthermore, the addition of the number of family members will increase the food expenditure, so in accordance with the condition that a large number of family members will affect household food consumption. When household energy expenditure of sugar cane farmers increased by 1%, it would increase food expenditure by 2.52%.

Tabel 6 – Estimation results of non-sugarcane income, food expenditure, non-food and household energy of sugarcane farmers in Malang Regency Indonesia, 2016

No	Variable	Estimation Parameter	Prob > t	Explanatory variables
1.	Non sugarcane farm income (NSFI)			
	Intercept	3167512	0.0185	
	NSFA	12416297	<.0001	Non sugarcane farming area
	TlnSF	41, 59505	0.8589	Total labor of non sugarcane farming
	NFM	-352277	0, 2191	Number of family member
2.	Food Expenditure (EF)			
	Intercept	2709749	0.0098	
	SSFH	0, 020944	0.0090	Surplus of Sugarcane Farmers Households
	NFM	751193.7	<.0001	Number of family member
	EE	2.526282	<.0001	Household energy expenditure of sugarcane farmer
3.	Non food expenditure (ENF)			
	Intersep	475780.0	0.0002	
	TISF	0.002707	0.0035	Total income of household sugarcane farming
	NFM	-29807.0	0.1493	Number of family member
	EE	0, 072778	0.2171	Household energy expenditure of sugarcane farmer

Note: significant at 10%.

Non-food expenditure equation, income variable of non-sugarcane farming and total household income of farmers have a positive and significant influence. Furthermore, for a partial influence of an independent variable on a non-free variable, that was non-food expenditure indicated that energy expenditure has a positive but not significant effect. While the number of family members variable was negative and not significant. For statistical test values R^2 , F, and F-statistics can be seen on table 7.

Table 7 – Indicator value R2-Statistic, F-Value, Probability F from Structural Equation

No.	Dependent Variabel	R2	F-value	Pro-F
1.	NFLSF	0.87010	222.38	<.0001
2.	FLSF	0.85834	252.98	<.0001
3.	NFLnSF	0.99944	1000594	<.0001
4.	FLnSF	0.59097	60.32	<.0001
5.	UZAF	0.68138	89.28	<.0001
6.	UPhF	0.32066	19.71	<.0001
7.	QS	0.89225	274.91	<.0001
8.	QNSF	0.22392	12.05	<.0001
9.	NSFI	0.32009	26.36	<.0001
10.	EF	0.20038	14.03	<.0001
11.	ENF	0,06718	4.03	0.0084

Table 8 – Variable Name from Structural Equation

1.	NFLSF	=	Non-family labor of sugarcane farming
2.	FLSF	=	Family labor of sugarcane farming
3.	TLnSF	=	Total labor of Sugarcane Farming
4.	NFLnSF	=	Non family labor of non-sugarcane farming
5.	FLnSF	=	Family labor of non sugarcane farming
6.	TLnSF	=	Total labor of non sugarcane farming
7.	UZAF	=	The Use of ZA Fertilizer
8.	UPhF	=	The Use of Phonska Fertilizer
9.	QS	=	Sugarcane Production
10.	QNSF	=	Non-sugarcane Production
11.	SFI	=	Sugarcane farm income
12.	TSFI	=	Total income of household sugarcane farmer
13.	NSFI	=	Non sugarcane farm income
14.	SSFH	=	Surplus of sugarcane farmers household
15.	EF	=	Food Expenditure
16.	ENF	=	Non Food Expenditure
17.	ESH	=	Sugarcane Household Expenditure
18.	SFA	=	Sugarcane farming area
19.	NFM	=	Number of Family Member
20.	WNFLSF _w	=	Wage of woman non family labor of sugarcane farming
21.	NSFA	=	Non sugarcane Farming area
22.	CSF	=	Cost of Sugarcane Farming
23.	PZAF	=	Prices of ZA fertilizer
24.	PPhF	=	Prices of Phonska fertilizer
25.	VSQ	=	Value of sugarcane production
26.	EE	=	Energy expenditure
27.	FR	=	<i>dummy</i> ratoon frequency

CONCLUSION AND SUGGESTIONS

Based on the result of the discussion, economic-decision making of sugarcane farmers household in the allocation of non-family labor allocation of sugar cane farming was influenced by sugarcane farming area, the use of ZA fertilizer, wage rate non-family of the human labor of sugar cane farming, and ratoons frequency. While the allocation of a family labor of sugarcane farming was influenced by sugarcane farming area, the use of the family labor of non-sugarcane farming, the number of household member of sugar cane farmer and ratoons frequency. Labor allocation of non-sugarcane farming was influenced by total non-sugarcane labor, while family labor was influenced by non-sugarcane farming area and non-sugarcane production.

Influential variables of sugarcane production decision were sugarcane farming area, the use of NPK fertilizer and total household spending. Non-sugarcane production was influenced by variables of sugarcane farming, non-sugarcane labor, and surplus of sugarcane farmers households. The sugarcane farming production facility consisted of ZA fertilizer which was influenced by farming cost and ZA fertilizer price, while the influencing variables of the use of NPK fertilizer were sugarcane farming area and the use of ZA fertilizer.

Non-cane farming income as an endogenous variable in the structural equation in the household decision making of sugarcane farmer was significantly influenced by non-sugarcane farming area. While welfare indicator was seen from household spending of sugarcane farmers. Variable of sugarcane households surplus, the number of family members and energy expenditure have a significant influence on food expenditure. Non-food expenditure was actually influenced by non-sugarcane farming income and total household income of sugarcane farmers.

Sugarcane farmers household decision-making cannot be separated from the ability of farmers to combine input usage, labor allocation, and household spending. Ratoons culture which becomes sugarcane development in the research area, if exceeding ratoons frequency recommended by the government, will cause the decrease of production and quality of sugarcane. So that in order to improve it, it was required the availability of capital, technology adoption and government policy on increasing the price of output and subsidy input and the synergic relationship between farmers and downstream industries.

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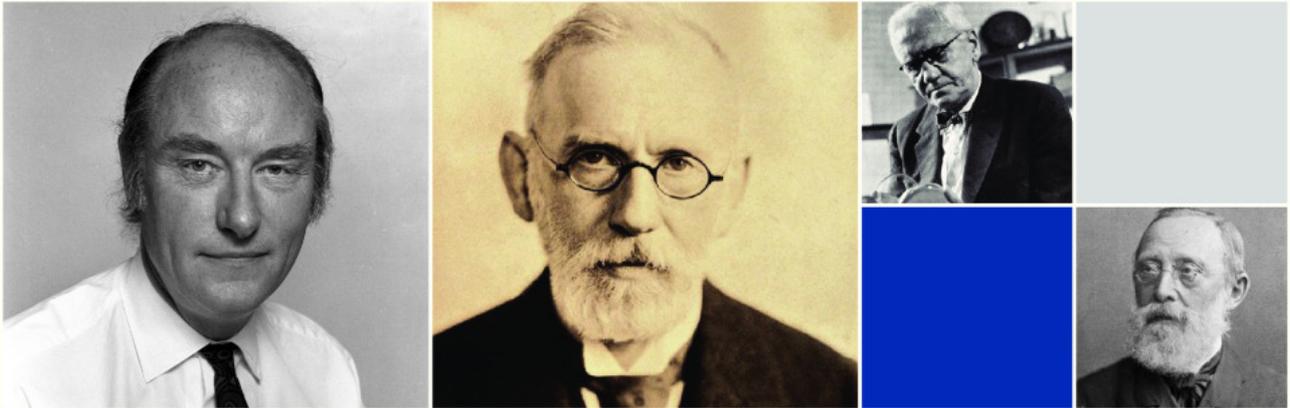
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