International Journal of Business and Management Invention
ISSN (Online): 2319 – 8028, ISSN (Print): 2319 – 801X
www.ijbmi.org || Volume 6 Issue 5 || May. 2017 || PP—09-19

Studying the Livelihood Diversification of Landowner Farmer in Tondong Tallasa Subdistrict of Pangkajene and Kepulauan District

Armin Muis, Muhammad Basir, Mauled Moelyono and Haerul Anam
Faculty of Economics, University Tadulako, Palu, Indonesia; e-mail : Email: arminmuis@yahoo.co.id

Abstract: *This study aim is to identify the trigger factors of farmer landowner to become labor to plant rice and to know the differences of expected income and factual income to identify the role of opportunity cost. This study was conducted by a survey method at 4 (four) village in Tondong Tallasa Subdistrict, Pangkajene and Kepulauan District. Data is collected by observation, questionnaires, interviews and documentation. The data analysis techniques are descriptive and inferential statistic. The results of this study are follows. First, the trigger factors of landowner farmer to become labor to plant rice of Tondong Tallasa Subdistrict are economic and cultural factors. From fourteen factors to affect of landowner farmer to become labor to plant rice, the biggest three factors are culture of friends/relatives invitation, like to work to other people, like to work in groups, and income certainty. Second, the variance test result shows that the factual income is lower than expected income.*

Key Words*: farmers, labors to plant rice, Tondong Tallasa.*

I. INTRODUCTION

Agricultural census in 2013 for area Pangkajene and Kepulauan District show that average of land areas of farmers household are also very small. The average land held by farmers household in this district is 0 .517 hectares in 2003 and 0.841 hectare in 2013. The ownership average of agricultural land by farmers household in 2003 is 0.478 hectares and in 2013 is 0.812 hectares, and ownership average of rice farmers in 2003 is 0.170 hectares and in 2013 is 0.296 hectares. Farmers households in these region are lower from 42,927 in 2003 to become 35,591 in 2013. The average of rice ownership by farmers in Tondong Tallasa Subdistrict are 1,445 hectares in 2013 and number of farmers households are 2,100 (CBS, 2015).

These agricultural census results illustrate that agricultural land area, especially rice fields owned by farmers household, both nationally and in Pangkajene and Kepulauan District are still far from the minimum land area requirement that must be owned by farmers households to live properly. According Fitriani (2003), wetland that must be owned by households farmers in order to live properly is 0.744 hectares. The discrepancies between the owned land and minimum standard possessed by farmers household become one reason for farmers to look for other's job. It can also be caused by people habits who love to work to other parties as in Tondong Tallasa Subdistrict community.

The agricultural census results also illustrates the smaller of farmers household, both nationally and Pangkajene and Kepulauan District. One cause of this decline is many farmers switch to other professions to meet the various needs of family. Some reasons for farmers to switch jobs have proved in some studies described below. Mashudi (1995) suggests that labor mobility of farmer households in four development unit area (SWP) East Java are influenced by push factors (level of agricultural income, family dependent, and wealth owned level) and pull factors (income level of other sectors , employment level, and transportation).

Farhani (2009) suggested that farmers motivations to switch furniture industry sector in Serenan village are the achievement, affiliation, power, and economic motivations. Motivation factors for farmers are internal factors (age, education level, landownership, income level, and cosmopolitan) and external factors (economic environment and government policies). Apata (2009) conducted research in Nigeria and concluded that farmers in Ondo State Nigeria switch to non-agricultural professions due to lower income derived from agriculture. Small income is caused by environmental damage from crude oil exploration in the region.

Tania (2011) found that the pineapple farmers in Mandalamukti village Cikalongwetan Subistrict of West Bandung switch to become a tea farm laborers or construction labors. They are motivated by internal factors (family dependents, income, and land), and external factors (pineapple productivity, pineapple marketing, capital, and several other contributing factors). Farmers Welfare level is not increased, remained at Prosperous 1 level. Dita (2012) found the agricultural sectorally become lower. It makes the farmers income is also lower. These finding are affected by various factors related to social and economic conditions of farmers as indicated their farmer society livelihood from non-agriculture as part time. It is generally caused by a smaller land, unfavorable position to market agricultural products as they do not have a bargain price, price of

agricultural products is not balanced with price of production so the farm is not profitable. The farmers struggle to meet their daily needs in family. Not only economic factors to depress the farmers incomes, social factors also play a role. Matakena (2013) make a study in Wadio Nabire District of West Nabire County. He found that education, farmer experience, family dependents, social and cultural issues affect the farmers to switch job.

Riandari et al (2012) found that farmer's decision to switch job is affected by two factors: internal factors and internal external. Internal factors include the amount of assets and economic motivation of the farmers. Smaller assets and more dependents, more diverse the livelihoods of the farmers. In addition, other internal factors to affect farmers' livelihoods diversity are the skills and financial capital. The external factors are market access and role of farmer groups. Marfirani and Adiatma (2012) and Saut Sagala et al. (2014) suggested that individual farmers adapt to various job as a result of climate change such as floods, droughts, and pest attack.

Faisal (2014) found reasons of farmer to switch job, namely landless for agriculture, low income and uncertainty in agriculture, higher economic needs, and desire to improve social status. The above phenomenon where farmers switch jobs are also occurred in four villages in Tondong Tallasa Subdistrict Pangkajene and Kepulauan District, namely at Lanne, Bantimurung, Bonto Birao, and Malaka Villages. There is a trend for people in Tondong Tallasa Subdistrict, particularly in four villages, to switch temporarily to become labor to plant rice. Farmers landowners reasons is to improve the family welfare when the rice planting season arrives, landowners farmers switch jobs to work to plant rice in different regions in Pangkajene and Kepulauan District and several other districts in South Sulawesi.

1.2. Research purposes

The main purpose of his research is to know the approximation of time allocation, optimization of agricultural land, farmers income, and disparities income between expected and factual income. In particular, this study aims are:

1. to identify the trigger factors of landowner farmer to become labor to plant rice.
2. to know the variance of expected and factual income received by farmers to identify the opportunity costs.

II. LITERATURE REVIEW

Weldegebriel et al. (2015) conducted a study at 1,240 farming households at four rural areas in Ethiopia: Amhara, Tigray, Oromia, and South to identify the determinants of non-farm income diversification. This study uses data from the Ethiopian Rural Household Survey (ERHS) for period of 1994, 1997, 2004 and 2009. In order to achieve the research objectives, Weldegebriel analyze the data with a Fixed-Effects model. It is found that from all the variables studied only two variables that significant to determine the non-farm income diversification, namely per capita consumption and Livestock holding. Other variables as age of household head, household head gender, education levels, household size, household assets, land ownership, access to credit, and access to electricity are not significant to determine the diversification of non-farm income.

Ike, Pius Chinwuba (2015) conducted a study at 180 households of small-scale farmers in rural areas of South East Nigeria. This study aim is to find the determinants of farmers' participation in non-farm activities. In order to achieve its objectives, Ike analyze the with a model tobit. The variables used are farmers age, gender, level of formal education, household size, dependency ratio, remittances, farm size, farm income size, agricultural status, distance to nearest town, and farming experience. It is found that from 11 the variables in model, there are only three variables do not have significant effect on farmers participation in non-farming activities. They are gender, household size, and farming experience. He found negative coefficients for farmer age, remittances, farm size, size of farmer income, agricultural status, and distance to nearest town. This suggests that decrease in unit of these variables will increase the farmers participation in non-farm activities.

Sarah (2012) examines 1,770 farmers households to determine the determinants of income diversification in rural area of Senegal and Kenya. The variables used are sex of household head, number dependents, highest educational level of household members, access to tractor, access to a animal plow, easy access to transport production throughout the year, access to transport production in few months, difficulty access to transport production throughout the year, households sell agricultural products, household with marketing contracts, saving accounts, credit, social assets of household head, unpaid labor, migrant labor, land, irrigated land and livestock ownership. The model used to analyze the survey data is univariate regression. It is found that from 18 the variables used in model, 10 variables are significant to determine the diversification of farmer household income . They are education level, access to animals plow, easy access to transport production throughout the year, easy access to transport production only a few months, difficult access to transport production throughout the year, households sell agricultural products, unpaid labor, migrant labor, land and irrigated land area

Production decisions of farmers rationally are related to economic principles. For example, maximum production can only be achieved with a certain cost, or to produce specific production, cost of production should

be minimized. "The cost for companies to produce goods is the input value used to produce output "(Lipsey, 1990: 247). Hirshleifer (1984: 213) suggest that the cost is" the amount of factors price multiplied by number of factors that are taken from all the sources used ". Bilas (1972: 211) states that "the cost of production sources is equal to value of production resources to use the best alternative". Manufacturers, in an effort to attract resources or production factors required, must pay the owners of those resources with a sufficient amount in accordance with prevailing market rates to encourage owners of production factors willingness to sell the production factors owned.

Mankiw et al. (2008: 270) states that definition of cost is "value of materials used by company in production process". Teken (1977: 177) states that definition of cost is "a number of compensation received by owners of production factors used in a production process". Another book explained that reference to cost or production costs are all costs incurred by firm to obtain production factors and raw materials that will be used to create items produced the firm (Sukirno, 1997: 207). Production costs incurred by each manufacturer consists of explicit and implicit costs. Explicit costs are opportunity cost of enterprise resources in form of cash payments. While the definition of implicit costs is opportunity cost companies to use its own resources or provided by owner without any cash payment (McEachern, 2000).

Nicholson (2000) suggests at least three concepts of costs. First, opportunity cost is the cost of goods or services measured by alternative use of missing because producing goods or services. Second, the accounting cost) is the concept of how the cost of goods or services paid for goods or services. Third, economic cost is the amount of fees required to maintain a resource in current usage; the value to be received of these resources is the next best alternative use. Of all the definitions of these costs can be concluded that definition of cost is all expenses and liabilities which must be made by manufacturers in an attempt to organize a production process, be it as fees opportunity, accounting fees, as well as an economical cost.

III. RESEARCH METHODS

Research Types

This research explains phenomenon of farmer landowners to become labor to plant rice, then this research type used is a survey method.

Research Location and Time

This study was conducted in four villages in Tondong Tallasa Subdistrict, Pangkajene and Kepulauan District. They are Lanne, Bonto Birao, Bantimurung and Malaka Villages. The research was conducted in February up to June 2016

Population, Sample and Sampling Techniques

Population

The study population are whole families of farmer landowners from four villages in Tondong Tallasa Subdistrict that become labor to plant rice.

Samples and Selection Technical

The sample size in this study is calculated as follows.

$$\frac{N}{1 + Ne^2}$$

Where:

n = sample size

N = population (272)

e = sampling error 5% of population or = 0.05. e = 5% become basis of errors level in decision

samples that can be tolerated by researchers is 5% . To determine the sample size in each village, in proportion sampling is used by formula of Sugiarto et al. (2003: 76) as follows.

$$n_h = \frac{N_h}{N} \; x \; n$$

Where:

n_h = sample size in each village

N_h = population size in each village

N = the number of population

n = number of samples

3.4. Data analysis technique

Descriptive and inferential statistical analysis is used in accordance with research objectives and hypotheses. The analysis tool to analyze data are follows. Descriptive statistics is done to answer first objective to find the triggering factors of farmer landowners to become labor to plant rice. Formulation of (Soekartawi,

2002: 83) is used to answer the second objective is to know the differences of expected and factual income of farmers to be identified as opportunity cost.

$$Y_1 = TR_1 - TC_1$$
$$Y_2 = TR_2 - TC_2$$

Description:
Y_1 = Factual income
TR_1 = Income from farming
TC_1 = Farming expenditure
Y_2 = Expected income
TR_2 = wages of labors to plant rice
TC_2 = expenditure as labor to plant rice
To find the differences of expected income and factual income, t test was used with formula from Sugiyono (2012: 197) as follows.

$$t = \frac{\overline{X_1} - \overline{X_2}}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Description:
$\overline{X_1}$: average income from farming
$\overline{X_2}$: average income from labor to plant rice
S_1^2 : deviation standard from farming
S_2^2 : deviation standard from labor to plant rice
n_1 and n_2 : research samples (respondents)
Hypotheses
H_0: μ income from labor to plant rice = income from farming
H_1: μ income from labor to plant rice > income from farming

Classic assumption test
This test is done to avoid problems of error, multicollinearity, heteroskedasticity and autocorrelation.

Multicolinearity test
Multicollinearity problem arises because the presence of one or more variables (Xi) become linear combination of explanatory of other independent variables Therefore, it is necessary to aid regression between explanatory variables. value of R^2 is calculated by formulation below.

$$F_i = \frac{R_{xi}^2/(k-2)}{(1-R_{xi}^2)/(n-k+1)}$$

Description:
R_{xi}^2 = coefficient of determination in regression of X variable to rest Xi variables.
n = sample size
k = number of explanatory variables included.
F count above Fi critical significance selected means that Xi is collinear with other X variables; if F count does not exceed the critical Fi, then Xi is not collinear with other X variables so that these variables can included in model (Gujarati, 2009 and Widarjono, 2009).

Heteroskedastity test
In regression, simple regression and multiple regression, estimator ordinary least squares (OLS) should not bias estimator of best linear (BLUE). Every exact estimated coefficients should equal to estimated value (Gujarati, Volume 1, 2006: 187 and Widarjono, 2009: 115). Variance of ui is not constant means heteroscedasticity (Gujarati, Book 1, 2009: 464). Park test is used to detects heteroscedasticity.
Park formulates a graphical method by suggesting that σ_i^2 is partly a function of explanatory variables Xi. The suggested form of regression function are as follows:

$$\ln e_i^2 = \alpha + \beta \ln X_i + v_i$$

Description:
e_i^2 =$=$ residual
Xi = explanatory variables
vi = error factor
If β is statistically significant, then there is heteroscedasticity in data. If not significant, then the homoeskedasticity assumption is acceptable (Gujarati, Book 1, 2009: 481 and Widarjono, 2009: 118).

Autocorrelation test

Cross-sectional study collect the data based on a random sample with cross-section units, like households. Error factor in one household can correlates with errors factors in other households. Units cross-section in data is known as spatial autocorrelation which is the correlation between the places (Gujarati, 2009). Autocorrelation means the correlation between the member's observations with other observations in different time (Widarjono, 2009: 141).

The term autocorrelation can be interpreted as " a correlation between members of a series of observations sorted by time (such as time series data) or place (as in cross-section data)" (Gujarati, Book 2, 2009: 8). Durbin-Watson test can be used to detect the autocorrelation (Gujarati, Book 2, 2009: 34). The formulation is below.

$$d = \frac{\sum(e_n - e_{n-1})^2}{\sum e_n^2}$$

IV. RESEARCH RESULTS

Farming experience

Farming experience is one determinant of success or failure in farming. The longer and more mature person's experience in farming, it becomes bases in decision-making to minimize possibility of risk. Farming experience of respondents are presented in following Table 1.

Table 1. Farming experience of respondents (in years)

No	Village	□ 5	%	6-10	%	11-15	%	16-20	%	21-25	%	□ 26	%
1	Lanne	2	1,23	13	8,02	9	5,56	5	3,09	5	3,09	12	7,41
2	Bonto Birao	2	1,23	5	3,09	3	1,85	10	6,17	7	4,32	13	8,02
3	Bantimurung	1	0,62	7	4,32	5	3,09	6	3,70	11	6,79	27	16,67
4	Malaka	2	1,23	3	1,85	1	0,62	3	1,85	4	2,47	6	3,70
	Total	7	4,32	28	17,28	18	11,11	24	14,81	27	16,67	58	35,80

Source: Data Primer, 2016

Table 1 illustrates that respondents generally have a long experience in farming. Total 127 respondents (78.40%) have farming experience more than 10 years and only 35 respondents or 21.60% had ≤ 10 years farming experience.

Experience as labor to plant rice

Experience as labor to plant rice is presented in Table 2 below.

Table 2. Respondent experience as labor to plant rice (in years)

No	Village	□ 5	%	6-10	%	11-15	%	16-20	%	21-25	%	□ 26	%
1	Lanne	20	12,35	15	9,26	4	2,47	3	1,85	2	1,23	2	1,23
2	Bonto Birai	11	6,79	11	6,79	5	3,09	8	4,94	4	2,47	1	0,62
3	Bantimurung	12	7,41	13	8,02	21	12,96	9	5,56	2	1,23	0	0,00
4	Malaka	1	0,62	6	2,47	7	4,32	2	1,23	0	0,00	3	1,85
	Total	44	27,16	45	27,78	37	22,84	22	13,58	8	4,94	6	3,70

Source: Data Primer, 2016

Table 2 illustrates that respondents generally have experience as labor to plant rice. Total of 45 respondents (27.78%) become labor to plant rice for 6-10 years, 73 respondents (45.06%) become labor to plant rice for more than 10 years, and only 44 respondents (27.16%) become labor to plant rice less than 5 years.

V. DISCUSSION

Trigger factors of farmer landowner to become labor to plant rice

The first objective of this study is to find trigger factors of farmer landowner to become labor to plant rice. The data used came from a survey of farmer households with a total sample of 162 respondents. The data is analyzed by descriptive statistics.

The findings show 14 trigger factors of farmers landowners to become labor to plant rice, as illustrated in Table 3 below.

Table 3. Trigger factors of farmer landowner to become labor to plant rice

No.	Triggers factors	Quantity	Percentage
1	Invited by friend/family	139	14,42
2	Like to work to other people	65	6,74
3	Like to work in group	108	11,20
4	Income certainty	131	13,59
5	Many family dependents	50	5,19
6	Insufficient farming income	59	6,12
7	For family welfare	103	10,68
8	No money to manage field	42	4,36
9	More needs	95	9,85
10	Want to raise social status	63	6,54
11	Input prices not comparable production price	49	5,08
12	Natural resource less profitable	1	0,10
13	Assets still small	58	6,02
Total answer		**964**	**100**

Source: Primary Data Processed

Table 3 shows 13 trigger factors of farmers to become labor to plant rice. It also illustrates also that the biggest trigger factors to become labor to plant rice is invited by friends/family. Total 139 respondents (14.42%) chose to become labor to plant rice for invited by friends/relatives, followed by income certainty of 131 respondents (13.59%), like to work in group of 108 respondents (11.20%) and for family welfare of 103 respondent (0.20%.) It was also found that 3 of 4 culture factors, ie: invited by friends/family, like to work in groups and income certainty are triggers factor most farmers choose to become labor to plant rice.

The table shows that from 13 trigger factors of farmer landowners to become labor to plant rice, 4 are cultural factors namely: invited by friends/family, like to work with other people, like to work in groups and income certainty. While other factors are: family responsibilities, insufficient farming income, family welfare, no money to manage field, more needs, want to raise the social status, input prices not comparable to production price, natural conditions are less favorable, asset still small and others. Furthermore, a description of trigger factors of farmer landowner to become labor to plant rice can be explained below.

a. Invited by friends/family

The findings showed that 139 respondents (14.42%) explain that invited by friends/family as one trigger factors to become labor to plant rice. This is the most trigger factor for farmers to become labor to plant rice.

b. Like to work to others

The finding shows that 65 respondent (6.74%) who answered to chose to become labor to plant rice is like work to other. This factor is also the fifth largest cultural factors and triggers factor for farmers to become labor to plant rice.

c. Like to work in groups

The finding show that 108 respondents (11.20%) choose like to work in groups as one trigger factors become labor to plant rice. This factor also included as cultural factors and the third biggest triggers. These findings are consistent with Lamb (2001) in Supryono (2015) that social factors affect a group of people together to promote equality status or rewards that continuously socialize among themselves both formally and informally. The social factors is a group of people who able to influence the behavior of individuals to perform an action based on customs.

d. Income certainty

The findings show that 131 respondent (13.59%) chose the income certainty as one trigger factor and the second biggest trigger factor of farmers to become labor to plant rice. The table also shows that 45,94% of farmers choice to become labor to plant rice is affect by culture. It is indicate that farmers choice to become labor to plant rice is not only triggered by economic factors but also by other factors. Setiadi (2003) and Lamb (2001) in Supriono (2015) explain that culture is a determining factor for basic desires and behaviors. Culture is the most important factor in decision-making behavior. Cultural factors are the habits of a society in response to

something considered to have values and customs. It can be started from the information they receive, their social position in society, and their knowledge of what they are feeling. Culture is a force to regulate human behavior. It consists of a set of behavior patterns transmitted and maintained by members of a particular community through various ways (Arnolds & Thompson, 2005 in Supriono, 2015).

e. Families dependents

The findings show that 50 respondents (5.19%) of farmer choice to become labor to plant rice simply was triggered by families dependents. These findings are consistent with Reardon et al (1992) in his research in three agro-ecological zones of Burkina Faso, Sahelian Zone in Northwest Zone Sudanian in central highlands, and Guinean Zone in Southwestern. It was found that number of children in household significantly affect farmers to diversify the income. Furthermore, Abdulai and Delgado (1999) in a study covering 37 villages in four districts in northern Ghana, namely the Savelugu Nanton District, Tolon Kumbungu, Gushegu Karaga, and tamales, found that household size affects the married farmers decisions to participate to work in non-farming. Furthermore, Babatunde and Qaim (2006) in his research in rural areas of Kwara, north central region, Nigeria, find that household size significantly affects the farmers participation in non-farm jobs. Riandari et al (2012) found that farmer's decision to shift livelihood is affected also by number of dependents.

f. Insufficient farm income

The findings show that trigger factors of 59 (6.12%) farmers to choose to become labor to plant rice was insufficient farming income. This finding is consistent with Zahonogo (2011) farmers from farming significantly affect farmers' participation in non-farm activities in Sahel-Sudan zone Burkina Faso. Furthermore Ike, Pius Chinwuba (2015) found that size of farm income significantly but negatively affect the farmers participation in non-farm employment in rural areas of South East, Nigeria.

g. Improving the family welfare

The findings show that the trigger factor of 103 respondents (10.68%) to chose to become labor to plant rice was a desire to improve the family welfare. This finding is consistent with Handika (2014) that one of reasons the farmers in Seunebuk Punti village, Manyak Payed subdistrict, Aceh Tamiang to diversify jobs is because of their desire to improve the family welfare.

h. Rice cultivation costs

The findings show that the trigger factor of 42 respondents (4.36%) to choose to become labor to plant rice was lack of capital to cultivate rice. These findings consistent with Riandari et al (2012) in village of Sawangan Gondowangi District of Magelang district. It was found that shift of financial capital affect the livelihoods of farmers, both from farm to non-farm or from farm to another farm.

i. More needs

The findings show that the trigger factor of 95 respondents (6.54%) choose to become labor to plant rice was more needs of family. These findings consistent with research of Riandari et al. (2012) in Sawangan village Gondowangi Subdistrict of Magelang district. It was found that more family needs also affect the livelihoods switch of farmers, both from farming to non-farming and other farming.

j. Desire to raise the social status

The findings show that the trigger factor of 63 respondents (9.85%) choose to become labor to plant rice was desire raise the social status. This finding is consistent with theory of social change. Social change is an integral part of society state. Sociology explain the social change from the aspect of how it happens, the size, why it happened, specific process, the nature of happening, the causing and the where and how quickly the change happens.

Kingsley Davis (in Sunarti, 2106) defines social change as changes in structure and function of society. Selosoemardjan (in Sunarti, 2016) defines social change as any changes in social institutions in a society to affects the social system, including changes in values, attitudes and behavior patterns among groups in society. WF Ogburn (in Sunarti, 2016) looks to causes of social changes with wide scope, covering cultural elements both material and immaterial, emphasizing on the influence of material elements to immaterial elements. Material culture changing has changed the immaterial culture, it means the more property (income) the higher a person's social status or vice versa (Sunarti, 2016). This triggers farmer to become labor to plant rice, if their income increases, their social status will rise.

k. Input prices not comparable production price

The findings show that the trigger factor of 63 respondents (9.85%) choose to become labor to plant rice was Input prices not comparable to production price. Riamdari (2012) found that farmers in Sawangan village Gondowangi Subistrict of Magelang District decided to switch their livelihoods because loss in farming. Possibility of harvests failure continue to threaten, especially for dry conditions that cannot be predicted.

Farmers profession is a very risky profession. Therefore, farming cannot be relied upon to meet the needs, so the farmers choose another more lucrative profession.

l. natural conditions

The findings indicate that only 2 respondent (0.2%) choose to become labor to plant rice because of natural conditions. Riandari et al (2012) in his study in Sawangan village Gondowangi Subistrict of Magelang found that natural condition is one causes to affect farmer to switch the livelihood.

m. Assets still small

The findings show that the trigger factor of 58 respondents (6.02%) to become labor to plant rice was asset still small. This finding is consistent with Demurger et al. (2009) who conducted the research in 10 villages in Labagoumen, north of State Huairou, Beijing City. They found small asset encourages farm owner households choose to diversify the income source. Furthermore, Riandari et al (2012) found that farmer's decision to switch the livelihood is influenced by amount of assets owned. Smaller assets makes farmers have more diverse subsistence. Faisal (2014) find a reason of farmers to switch jobs and diversifying the livelihoods due to lack of agricultural land (assets).

The difference between expected and factual income

The second objective of study is to determine the magnitude differences of expected income with factual income of farmers to identify opportunity cost of using a paired t-test. It is called differential test. The results of this test by Microsoft Excel 2010 can be seen in Table 4 and Table 5.

1. Analysis the income differences of revenue-sharing and labor to plant rice.

Average difference (t-test)is used to determine differences in average income of farmers to become labor to plant rice and farmer income from revenue-sharing, as shown in table 4 below.

Table 4. Paired t test result between revenue-sharing and farmer as labor to plant rice

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	*Variable 2*
Mean	1127760	2802441
Variance	80335396364	3,19374E+12
Observatio	100	100
Pooled Var	1,63704E+12	
Hypothesiz	0	
df	198	
t Stat	-9,255236544	
P(T<=t) one	1,77864E-17	
t Critical or	1,652585784	
P(T<=t) two	3,55729E-17	
t Critical tw	1,972017432	

Sources: Primary data, processed

It was found that average income of farmers from revenue-sharing is IDR 2,802,411. It is greater than revenues of plantations of IDR 1,127,760 or the difference is IDR 1674681. Two-tail significance value was 0.000 <0,05. It means there is significant differences between the farmers income from revenue-sharing system and farmers income as labor to plant rice. The value of t-statistics is -9.255236544 (negative), it means that farmers income as labor to plant rice is smaller than farmers income from revenue-sharing. It means the Ho is accepted and Ha is rejected.

2. Analysis the income differences of farmers from agribusiness and as labor to plant rice

Average difference (t-test)is used to determine differences in average income of farmers to become labor to plant rice and farmer income from agribusiness, as shown in table 5 below.

Table 5. Paired t test (different test) Between Farmers Income From Farming Results with Revenue As Plant Workers

t-Test: Two-Sample Assuming Equal Variances

	Variable 1	*Variable 2*
Mean	1129129,032	2211250
Variance	1,23316E+11	9,79863E+11
Observations	62	62
Pooled Variance	5,5159E+11	
Hypothesized Mean Difference	0	
df	122	
t Stat	-8,112386714	
P(T<=t) one-tail	2,23498E-13	
t Critical one-tail	1,6574395	
P(T<=t) two-tail	4,46997E-13	
t Critical two-tail	1,979599854	

Sources: Primary data, processed.

It was found that average income of farmers from agribusiness is IDR 2.211.250 greater than as labor to plant rice of IDR 1,129,129 or there is a difference of IDR 1,082,120. Two-tail significance value was 0.000 <0,05, it means there is significant differences between the farmers income from agribusiness and farmer income as a labor to plant rice. The value of t-statistics is -8.112386714 (negative), it means that farmers income as labor to plant rice is smaller than farmers income from agribusiness. It means the Ho is accepted and Ha is rejected. Difference test results, both between farmers income as a labor to plant rice compared to revenue-sharing and agribusiness show the expected income are smaller than factual income.

REFERENCES

[1] Badan Pusat Statistik (BPS), 2011. Beberapa Perkembangan Sosial Ekonomi di Indonesia.
[2] ----------, 2012. Kabupaten Pangkajene dan Kepulauan dalam angka.
[3] ----------, 2014. Sensus Pertanian Tahun 2013.
[4] ----------, 2014. Sensus Pertanian Provinsi Sulawesi Selatan Tahun 2013.
[5] ----------, 2015. Kecamatan Tondongtallasa Dalam Angka.
[6] ----------, 2015. Registrasi Penduduk Kabupaten Pangkajene dan Kepulauan Dalam Angka.
[7] Abdulai, Awudu and Christopher L Delgado, 1999. Determinants of Non-Farm Earnings of Farm-Based Husbends and Wives in Northern Ghana. American Journal of Agricultural Economics, Volume 81 il pl 17(1).
[8] Adeyonu, A.G., 2012. Gender Dimensions of Time Allocation of Rural Farming Households in Southwest Nigeria. Current Research Journal of Social
[9] *Science* 4 (4).
[10] Akighir, David Terfa, 2011. Efficiency of Resource Use in Rice Farming Enterprise in Kwande Local Government Area of Benue State, Nigeria. International Journal of Humanites and Social Science, Vol. 1 No. 3.
[11] Amao, J.O., 2008. Analysis of Off-Farm Work among Farming Households in Oyo State. International Journal of Agricultural Economics and Rural Development, Vol. 1 No. 2.
[12] Apata, T.G., 2009. Determinants of Poverty and Household Diversification Strategis in Crude-Oil Producing Areas of Ondo State Nigeria. African Journal Online (AJOL), Vol. 5 No. 1.
[13] Babatunde, Raphael O and Martin Qaim, 2006. The Role of Off-Farm Income Diversification in Rural Nigeria: Driving Forces and Household Access. http://www.gogle.com/search?q=051-babatunde&ie=utf-8&oe=utf-8
[14] Bank Dunia, 2000. Pengertian Kemiskinan.
[15] https://www.google.com/search?q=pengertian+kemiskinan+menurut+bank+dunia+tahun+2000&ie=utf-8&oe=utf-8
[16] Becker, Gary S., 1965. A Theory of The Allocation of Time. The Economic Journal, Vol. 79 No. 299.
[17] Darwanto, 2010. Analisis Efisiensi Usahatani Padi di Jawa Tengah (Penerapan Analisis Prontier). *Jurnal Organisasi dan Manajemen*, Vol. 6 No. 1.
[18] Dauda, S. N., Tiamiyu S.A. dan Ibrahim S.T., 2014. Analysis of Resource Use Efficiency of Low Land Rice Production in Katcha Local Government Area of Niger State. IOSR Journal of Agriculture and Veterianary Science, Vol. 7, Issue 6 Ver. II.
[19] Departemen Sosial RI, 2001.Kosep Kemiskinan dan Strategi Penanggulangannya. http://anggaandala.blogspot.co.id/2012/08/konsep-kemiskinan-dan-strategi.html
[20] ----------, 2002. Konsep Kemiskinan. https://www.google.com/search?q=pengertian+kemiskinan+menurut+departemen+sosial+tahun+2001&ie=utf-8&oe=utf-8.
[21] Dermurger, Sylvie, Martin Fournier, and Weiyong Yang, 2009. Rural Households Decisions Towords Income Diversification: Evidence From a Township in Northern China. Documents De Travil-Working Papers W.P. 09-23.
[22] Dewi, I.G.A. Chintya, I Ketut Suamba, I.G.A.A. A,barawati, 2012. Analisis Efisiensi Usahatani Padi Sawah (Studi Kasus di Subak Pacung Babakan Kecamatan Mengwi Kabupaten Bandung. *E-Jurnal Agribisnis dan Agrowisata*, Vol. 1 No. 1.
[23] Dita, Kurnia Novi, 2012. Pengaruh Kondisi Sosial Tehadap Diversifikasi Mata Pencaharian Rumah Tangga Petani Desa Bakung. http//www.google.com/ search?=jurnal+pengaruh+kondisi+sosial+terhadap+diversifikasi+mata+pencaharian+rumah+tangga+petani+desa+bakung&ie=utf-8&oe=utf-8.

[24] Edy S, Kusmantoro dan Tatang Widjojoko, 2009. Analisis Keberagaman Usaha Rumah Tangga Pertanian Lahan Kering di Kabupaten Banyumas. *J-SEP* Vol. 3 No. 3.

[25] Effendy, 2010. Efisiensi Faktor Produksi dan Pendapatan Padi Sawah di Desa Masani Kecamatan Poso Pesisir Kabupaten Poso. *Jurnal Agroland* 17 (3).

[26] Fadipe, A.E.A. A.H. Adenuga, dan A. Lawal, 2014. Nalysis of Income Determinants Among Rural Households in Kwara State, Nigeria. Trakia Journal of Scieces No. 4.

[27] Faisal, Herry Nur, 2014. Pengaruh Latar Belakang Petani Beralih Profesi Mata Pencaharian Menjadi Buruh Migran (TKI/TKW). *Jurnal BONOROWO*, Vol. 1 No. 2.

[28] Farhani, Ardianto, 2009. Motivasi Sosial Ekonomi Petani Beralih Pekerjaan Dari Sektor Pertanian ke Sektor Industri Kerajinan Mebel di Desa Serenan Kecamatan Juwiring Kabupaten Klaten. http/www.google.com/search?q= motivasi+sosial+ekonomi+petani+beralih+pekerjaan+dari+sektor+pertanian+ke+sektor+industri+mebel&ie=utf8&oe=utf-8.

[29] Fauziyah, Elis, 2010. Analisis Efisiensi Teknis Usahatani Tembakau (Suatu Kajian Dengan Menggunakan Fungsi Produksi Frontier Stokhastik). *Jurnal Embryo* Vol.7 No. 1.

[30] Febriyansyah, Ahmad. 2013. Analisis Potensi dan Pemanfaatan Tenaga Kerja Serta Pengaruhnya Terhadap Produktivitas Padi Sawah Lebak di Kecamatan Pemulutan Selatan Kabupaten Ogan Ilir. *Jurnal Ilmiah AgrIBA* No. 3.

[31] Fitriani, Arie Agustina, 2003. Analisis Daya Dukung Lahan Pertanian dan TekananPenduduk. http//www.google.com/search?=Arie+Agustina+ Fitri ani&ie=utf-8oe= utf-8.

[32] Flower, Tuty, Rahmanta, dan Iskandarini, 2012. Analisis Efisiensi Penggunaan Faktor-Faktor Produksi Pada Usahatani Padi Sawah di Desa Sei Belutu Kecamatan Sei Kamban, Kabupaten Serdang Bedagai. http//www.google.com/search?q=analisis+efisiensi+penggunaan+faktor faktor+ produksi+pada+usahatani+padi+sawah&ie=utf-8&oe=utf-8.

[33] Gratio, Fridolin dan Andreas Sukamto, 2013. Pendapatan dan Fungsi Produksi Jagung (Studi Kasus Pada Usahatani Jagung di Pedukuhan Sawah, Monggol Saptosari,Gunungkidul. http//www.google.com/search?q=pendapatan+ dan +fungsi+produksi+jagung&ie= utf-8&oe=utf-8.

[34] Haile, Mekbib Gebretssadik and Degnet Abebaw, 2012. What Factors Detemine The Time Allocation of Agricultural Extension Agents on Farmers' Agricultural Fields? Evidence Form Rural Ethiopa. Journal of Agricultural Extension and Rural Development, Vol. 4 (10).

[35] Harisantoso, Imanuel Teguh, 2012. Faktor-Faktor Penyebab Perceraian di GKJW Se Kabupaten Jember (Suatu Analisis Menggunakan Pertukaran Sosial). https://www.google.com/search?q=faktor-faktor+penyebab+perceraian+di+ GKJW +se+kabupaten+jember&ie=utf-8&oe=utf-8.

[36] Hartono, Budi, 1995. Analisis Alokasi Waktu Tenaga Kerja Keluarga Peternak Kambing di Kabupaten Malang. *Buletin Peternakan* Vol. 19.

[37] Haryono, Dwi, 2008. Dampak Industrialisasi Pertanian Terhadap Kinerja Sektor Pertanian dan Kemiskinan Pedesaan: Model CGE Recursive Dynamic. https://www.google.com/search?q=dwiharyonoipb&ie=utf-8&oe=utf-8

[38] Hochscherf, J., 2015. Labour Time Allocation of Farm Households The Case of Volatile Food Prices. Draft Version: 14th July 2015. http//www.google.com /search?q=labour+time+allocation+of+farm+hpuse+old+the+case+of+volatile+food+pri ces&ie=utf-8&oe=utf-8.

[39] Ike, Pius Chinwuba, 2015. Determinants of Participation in Nonfarm Economic Activities in South East Nigeria: A Tobit Analysis Approach. Journal of Biologi, Agriculture and Healthcare Vol. 5 No. 2.

[40] Keivani, Farshad Sameni, Ali Bidarian, dan Mousa Najibi, 2014. The Production Function of Iran Agricultural Sector. TI Journal Agriculture Science Developments, Vol. (3) No. 2.

[41] Khai, Tran Tien and Nguyen Ngoc Danh, 2010. Determinants of Income Diversification and its Effect on Household Income in Rural Vietnam. https://www.google.com/search?q=determinants+of+income+diversification+and+its+effect+on+household+income+in+rural+vietnam&ie=utf-8&oe= utf-8

[42] Kumar, Jagdish and Prakash K.K., 2008. Contract Farming: Problems, Prospects, and its Effect on Income and Employment. Agricultural Economics Research Review, Vol. 21 July-Dcember.

[43] Lifianthi, Selly Oktarina, dan Desi Aryani, 2014. Perbandingan kontribusi Pendapatan dan Pengeluaran Konsumsi Petani Plasma Kelapa Sawit di Dua Tipologi Lahan di Sumatera Selatan. Prosiding Seminar Nasional Lahan Sub Optimal Lahan 2014, Palembang. http/www.google.com/search?q =perbandingan+kontribusi+pendapatan+dan+pengeluaran+konsumi+petani+plasma+kelapa+sawit+di+dua+tipologi+lahan+berbeda+di+sumatera+selatan&ie=utf-8&oe=utf-8.

[44] Marfirani, Risa dan Ira Adiatma, 2012. Pergeseran Mata Pencaharian Nelayan Tangkap Menjadi Nelayan Apung di Desa Batu Belubang. Prosiding Seminar NasionalPengelolaan Sumberdaya Alam dan Lingkungan. Semarang, 11 September 2012. http/www.google.com/search=pergeseran +mata+pencaharian+ nelayan+tangkap+menjadi+nelayan+apung&ie=utf-8&oe=utf-8.

[45] Marwah, S, 2001 (dalam Kusmantoro, 2009). Daerah Aliran Sungai Sebagai Satuan Unit Perencanaan Pembangunan Pertanian Lahan Kering. *J-SEP* Vol. 3. No. 3.

[46] Matakena, Simon, 2013. Faktor yang Mempengaruhi Peralihan Usahatani Padai ke Usahatani Jeruk Manis (Studi Kasus Pada Komunitas Petani Jeruk Manis di Kampung Wadio Distrik Nabire Barat Kabupaten Nabire. *AGRILAN, Jurnal Agribisnis Kepulauan*, Vol.2 No. 2.

[47] Msigwa, Robert Ebihart, 2013. The Value and Time Allocation in Rural Tanzania. Journal of Economics and Sustainable Development, Vol. 4 No. 10.

[48] Nalinda, Rika, 2006. Alokasi Waktu Kerja Keluarga Pengrajin Emping Melinjo di Kecamatan Mlati Kabupaten Sleman. *Jurnal Ilmu-Ilmu Pertanian* Vol. 2 No. 2.

[49] Oniah, M.O. and I.C. Idiong, 2008. Efficiency of Resource Use in Small Scale Swamp Rice Production in Obubra Local Government Area of Cross River State, Nigeria. Middle-East Journal of Scientific Research 3 (3).

[50] Pakasi, Caroline B.D., Charles R.N., dan Vicky R.B.M., 2014. Kajian Ekonomi Rumah Tangga Petani Kelapa di Kecamatan Kauditan Kabupaten Minahasa Utara. https://www.google.com/search?q=Kajian+ekonomi+rumah+tangga +petani+kelapa+di+kecamatan+kauditan+kabupaten+minahasa+utara&ie=utf-8&oe=utf-8

[51] Purnomo, A.M. dan Arya Hadi Dharmawan, 2007. Transformasi Struktur Nafkah Pedesaan: Pertumbuhan "Modal Sosial Bentukan" dalam Skema Penge- lolaan Hutan Bersama Masyarakat di Kabupaten Kuningan. *Jurnal Sodality* Vol. 1 No. 2.

[52] Purwantoro dan Sulistyaningsih, 2013. Dampak Alih Fungsi Lahan Terhadap Pendapatan Petani (Studi Kasus di Desa Landangan Kecamatan Kapongan. http/www.google.com/search?q=dampak+alih+fungsi+lahan+tehadap+pendapa tan+petani&ie=utf-8&oe=utf-8.

[53] Purwita, Tjipta, Harianto, Bonar M. Sinaga, dan Hariadi Kartodihardjo, 2009. Analisis Keragaan Ekonomi Rymah Tangga: Studi Kasus pengelolaan Hutan Bersama Masyarakat di Pangalengan Bandun Selatan. *Jurnal Penelitian Sosial dan Ekonomi Kehutanan*, Vol. 6 No. 1.
[54] Reardon, Thomas, C. Delgado, and Peter Matlon, 1992. Determinants and Effects of Income Diverisification Amongst Farm Households in Burkina Faso. Journal of Development Studies- Januari 1992.
[55] Riandari, Aji Subejo, Rosa Wicaksono, dan Ageng Setiawan H., 2012. Pengambilan Keputusan Petani Dalam Pergeseran Mata Pencaharian Pasca Erupsi Merapi di Desa Gondowangi Kecamatan Sawangan Kabupaten Magelang. *Jurnal Ilmu-Ilmu Pertanian*, Vol. 15 No. 1.
[56] Risandewi, Tri, 2013. Analisis Efisiensi Produksi Kopi Robusta di Kabupaten Temanggung (Studi Kasus di Kecamatan Candiroto). *Jurnal Litbang Provinsi Jawa Tengah*, Volume 11 Nomor 1.
[57] Rokhani, 2009. Analisis Pembangunan Sektor Pertanian Berperspektif Gender di Kabupaten Ngawi. *J-SEP* Vol. 3 No. 2.
[58] Sagala, Saut, Asirin, Intania Rahma Sani, dan Alpian Angga Pratama, 2014. Tindakan Penyesuaian Petani Terhadap Dampak Perubahan Iklim (Studi Kasus di Kabupaten Indramayu). Resilience Development Initiative, WP No. 6, Maret 2014. http/www.google.com/search?q=tindakanpenyesuaian +petani+terhadap+dampak +perubahan+iklim&ie=utf-8&oe=utf-8.
[59] Saleh, Eniza dan Yunilas, 2004. Perbandingan Alokasi Waktu Tenaga Kerja Wanita dan Pria dalam Usaha Penggemukan Sapi di Kecamatan Hamparan Perak Kabupaten Deli Serdang. *Jurnal KOMUnikasi Penelitian*, Vol. 16 (6).
[60] Sani, A, A.A. Yakubu dan H.M.Bello, 2010. Resource Use Efficiency in Rice Production Under Small Scale Irrigation in Bunkure. Nigerian Journal of Basic and Applied Science, 18 (2).
[61] Sarah, Alobo, 2012. Determinants of Rual Household Income Diversification in Senegal and Kenya. https://www.google.com/search?q=determiants+ of+ rural+household+income+diversification+in+senegal+and+kenya&ie=utf-8&oe=utf-8.
[62] Sinaga, Asmina Herawaty, 2014. Optimasi Pengaruh Faktor-Faktor Produksi Usahatani Padi Sawah. *Jurnal Darma Agung*.
[63] Sugiono dan Dibyo Iskandar, 2015. Pengaruh Faktor Budaya, Sosial, Individu, dan Psikologis Terhadap Keputusan Konsumen Membeli di Indomaret. Jurnal Kelola Vol. 2 No. 3.
[64] Sukiyono, Ketut, 2004. Analisis Fungsi Produksi dan Efisiensi Teknis: Aplikasi Fungsi Produksi Frontier Pada Ushatani Cabai di Kecamatan Selupu Rejang Lebong. *Jurnal Ilmu-Ilmu Pertanian Indonesia*, Vol. 6 No. 2.
[65] Sumastuti, Efriyani, 2009. Analisis Pendapatan petani Tebu di Kabupaten Pekalongan. *Jurnal Ilmu-Ilmu Pertanian*. Vol. 5 No. 1.
[66] Sundari, Endang Sriningsih, dan Adwi Herry K.E., 2005. Alokasi Waktu Kerja Wanita dan Sumbangannya Terhadap Pendapatan Rumah Tangga Petani di Kecamatan Baturaden Kabupaten Banyumas. *Jurnal Pembangunan Pedesaan* Vol. V No. 3
[67] Suratinojo, Destreeana, 2014. Kajian Ekonomi Rumah Tangga Petani Kelapa di Kecamatan Kauditan Kabupaten Minahasa Utara. http//www.google.com /searh?q=kajian+ekonomi+rumah+tangga+petani+kelapa+di+kecamatan+kauditan+kabupaten+minahasa=Utara&ie=utf8&oe=utf-8.
[68] Suresh, A. dan T.R. Keshava Reddy, 2006. Resource-use Efficiency off Paddy Cultivation in Peechi Command Area of Thrissur District of Kerala: An Economic Analysis. Agricultural Economics Research Review, Vol. 19.
[69] Tahir, Abdul Gaffar, Dwidjono Hadi Darwanto, Jangkung Handoyo Mulyo, dan Jamhari, 2010. Analisis Efisiensi Produksi Sistem Usahatani Kedelai di Sulawesi Selatan. *Jurnal Agro Ekonomi*, Vol. 28 No. 2.
[70] Tania, Tiara, 2011. Alih Fungsi Petani Nanas di Desa Mandalamukti Kecamatan Cikalongwetan Kabupaten Bandung Barat.https//www.goole.com/search?= Alih+profesi+petani+nanas+di+desa+mandalamukti&ie=utf-8&oe=utf-8.
[71] Taridala, Sitti Aida Adha dan Darwis, 2012. Alokasi Waktu Gender, Sumber Pendapatan dan Ketahanan Pangan Rumah Tangga Petani di Daerah Rawan Pangan.http/google.com/search?q=alokasi+waktu+gender+sumber+penda-patan+dan+ketahanan+pangan+rumah+tangga+petani=di+daerah+rawan+pangan&ie= utf-8&oe=utf-8.
[72] Weldegbriel, Zerihun Berhane, Giuseppe Folloni, and Martin Prowse, 2015. The Determinants of Non-Farm Income Diversification in Rural Ethiopia. Journal of Poverty and International Development, Vol. 6 No. 1.
[73] Yusdja, Yusmichad, Edi Basuno, Mewa Ariani, dan Tri Bastuti Purwantini, 2004. Analisis Peluang Peningkatan Kesempatan Kerja dan Pendapatan Petani Melalui Pengelolaan Usahatani Bersama. *Jurnal Agro Ekonomi*, Volume 22 No. 1
[74] Zahonogo, Pam, 2011. Determinants of Non-Farm Activities Participation Decisions of Farm Households in Burkina Faso. Journal of Development and Agricultural Economics Vol 3 (4).