



Analysis of Opportunity Coston Land Utilization of Soybean and Corn Farming in Watubangga Sub-district, District of Kolaka

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Abstract

This study aimed to analyze the utilization of agricultural land and income difference between soybean (*Glycine max L Merril*) farming and corn (*Zea mays L*) farming in Watubangga sub-District, District of Kolaka. Data were collected by survey and interview and analyzed using an income approach and mean difference test for 65 samples of heads of households (KK). The results of data analysis showed that the opportunity cost of land utilization was Rp 5.481.651/ Ha which caused by choosing soybean farming. The result also showed a significant difference in land utilized for soybean and corn farming. The Result of study suggested the farmers cultivate corn.

Keywords: Land utilization, income.

A. Background

The agricultural sector is one of the sectors that can still be relied upon due to its ability to generate income in overcoming the current crisis. This situation indicates that the agricultural sector is one of the reliable sectors that has a great potential to play a role in triggering the national economic recovery. The agricultural sector is one source of foreign exchange for the Republic of Indonesia. Thus, the development of this sector should continue to be improved. It is in line with the main goal of national development that is to improve the standard of living, intelligence, and welfare of all society. Along with the development of agriculture, the livelihood of farmers should receive a great attention. One of the efforts to improve farmer's livelihood is by increasing income through an appropriate utilization of land (Husodo, et al, 2004).

Soybean (*Glycine max L Merril*) is one of the important crops in Indonesia that plays an important role in the lives of millions of soybean farmers, about 160 thousand small craftsmen of tofu and tempe industries as well as millions of people as consumers. Since 1975 Indonesia became a soybean importer country because local soybean production is poor to meet soybean demands. The current data showed that the production of soybean in 1998 reached 1.306 million tons, but decreased by 1,357 million tons in 1997, otherways, soybean consumption reached 2,040 million tons in 1998 and 2,020 million tons in 1997 which lead to causing Indonesia to regularly import soybeans (Ahmad, 2000). On the other hand, the effort of self-sufficiency of corn continues to be programmed, because corn is the second carbohydrate-

producing food after rice. In addition to direct consumption, corn is also used as fodder for animal to produce milk and meat and also as used widely in industrial raw materials. Therefore, corn is a commodity that has strategic value as well as rice (Anonymous, 2002).

Agribusiness system is a unity of commercial business in agriculture by optimal utilization of all resources to obtain maximum benefits for all actors involved in whole agribusiness subsystems, such as subsystems of procurement of production facilities, subsystem of primary production and subsystem of management and marketing (Soeharjo, 1996). On the other hand, farming activities can not be separated from the economic principle that is efficient and effective. Where the meaning of economic principles is the smallest sacrifice to get maximum results. Efficient in economic activity emphasized on the aspect of sacrifice by minimizing costs without reducing the targeted profits. Effectively focused on the goal (goal or outcome), that is how to gain maximum results without an additional cost. In simple word, farming (business) is all the activities carried out by one or more people in order to gain a profit through the provision of products needed by society (Francis, 2009).

A farmer who chooses a type of investment means releasing the opportunity to invest in other investments. All farmers seek the highest-yielding investment with low risk, while others are looking for that can provide long-term yield guarantees although with little results. Opportunity cost also relates to the principle of substitution and particularly significant in estimating the return rate of investments necessary to attract the capital inflows. By analyzing and comparing the return rate on investment offered by various investment instruments, farmers can assess which one is best to cultivate. Opportunity cost is described as the net cost of the other opportunity to get investments that are not selected or the choices that are passed, rejected or left to disappear (Prawoto, 2004). Business is all the activities carried out by one or more people in order to gain a profit through the provision of products needed by society (Francis, 2009).

Farming conducted by the community in Watubangga Sub-District aimed to earn income and give a significant contribution to the life of farmers, in which the income of farmer is the ultimate goal of a production process by utilizing the land, capital and labor. However, the best utilization of land from types of farming needs to be determined. Thus, this study aimed to determine the amount of income (opportunity cost) between soybean and corn farming on land utilization by farmers in Watubangga District Subdistrict, District of Kolaka. The problems of the study ; How much the opportunity cost of land utilization between farming and corn farming in Watubangga Sub-District, Kolaka District; and Is there any income differs from the utilization of soybean and corn farming in Watubangga Sub-District, Kolaka District.

B. Method

1. Research site

The research site is located in the village of Gunung Sari and Sumber Rejeki Watubangga Subdistrict, Kolaka District. The location was chosen because both of the areas are the center production of soybean and corn in Watubangga District. Moreover, the distance of the location was close and have the same land contours so that the soil fertility was also the same.

2. Population and sample of research

The samples of the study consisted of 30 Head of households (KK) of corn farmers in Gunung Sari Village, and 35 Head of households (KK) of Soybean farmer n Sumber Rejeki Village, then the number of the samples was 65 head of households (KK). The determination of the sample taken by the census of the entire population was used as the research samples. Thus, all members of the population were respondents in order to reduce the error mean (Sugiyono, 2009).

3. Data Analysis

To know the amount of opportunity cost, it is analyzed by using a descriptive analysis which based on income analysis, (Soekartawi, 2002);

$$\pi = TR - TC.$$

Where:

$$\pi = \text{Income (Rp).}$$

$$TR = \text{Total revenues (Rp).}$$

$$TC = \text{Total cost (Rp).}$$

The difference of income was analyzed using SPSS 20 software *Paired Sampel t_test* (Wiratna, 2015). *The test of t-paired* is used to determine the average difference of two independent samples.

Criteria of test:

Ho : There is no difference of income between soybean and corn farming.

Ha : There is a difference of income between soybean and corn farming.

Decision:

If Sig > 0.05, Ho is accepted.

If Sig < 0.05, Ho is rejected.

Sampling technique used was the census or saturated sampling method that is 37 respondents consisting of 16 fishermen, 7 collectors, 3 merchants and 11 retailers. In this research, the sampling technique was combined with Snowball Sampling. This method was used because the number and existence of the sample were not very clear. The researcher only knew some samples and wanted more samples used in the research. Therefore, the researchers looked for one of the fishermen (Mr. H. Kidung, 61 years) in the location of the study to be questioned more clearly and showed to other fishermen and marketing practitioners who can be sampled for the purposes of this study.

4. Data Analysis

In this study, the marketing margin is calculated as the difference between the selling price of sea fish at the fisherman level and the selling price of the sea fish at the retailer level. In order to know the value of marketing margin on every marketing practitioner, it will be tested by using cost analysis tool and marketing margin (cost margin analysis) by calculating the amount of marketing margin, marketing cost and profit as well as fisherman's share. Calculation of marketing margin value uses the following formula:

- a. Marketing Margin Analysis, used to measure the profit of each practitioner involved in the fish distribution process.

Formula: $MP = Pr - Pf$ (3.2)

Where:

MP = Marketing margin (Rp/kg)

Pr = Price of consumers (Rp/kg)

Pf = Price of Producers (Rp/kg)

- b. Share price received by fishermen, which is the percentage of profits received by fishermen.

$SPf = Pf / Pr$ (3.3)

Where:

SPf = Share price at fishermen level

Pf = Price at fishermen level

Pr = Price at consumers level

- a. Marketing costs and profit sharing.

$Sbi = (bi / Pr) \times 100\%$ (3.4)

$Ski = (ki / Pr) \times 100\%$ (3.5)

Where :

Ski = Share the profit of marketing institution of i

Sbi = Share marketing cost of i

Marketing margin distribution

$DM = (Mi / Mtot) \times 100\%$ (3.6)

Where:

DM = Margin distribution

Mi = Marketing margib of marketing agency groups

i = 1 (collectors)

i = 2 (merchants)

I = 3 (trailers)

$Mtot = M1 + M2 + M3$ (3.7)

C. Results and Discussion

1. Land Utilization for Soybean and Corn farming

The results of the field observation suggested that there is a difference of the use of inputs and outputs, both in terms of production, price, and costs for soybean and corn farming. The differences can be seen in Table 1.

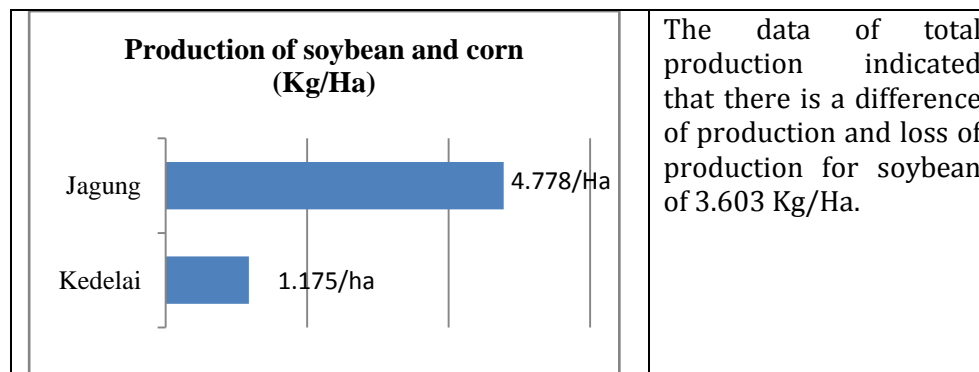
Table 1. Soybean and corn farming

Description	Value per hectare	
	Soybean	Corn
Production (Kg/Ha)	1.175	4.778
Price (Rp/Kg)	7.000	3.000
Revenue (Rp/Ha)	8.225.000	14.334.000
Production cost (Rp/Ha)	4.247.651	4.875.000
Income (Rp/Ha)	3.977.349	9.459.000
Opportunity Cost(Rp/Ha)	(5.481.651)	

Source: A Primary data, analyzed in 2016.

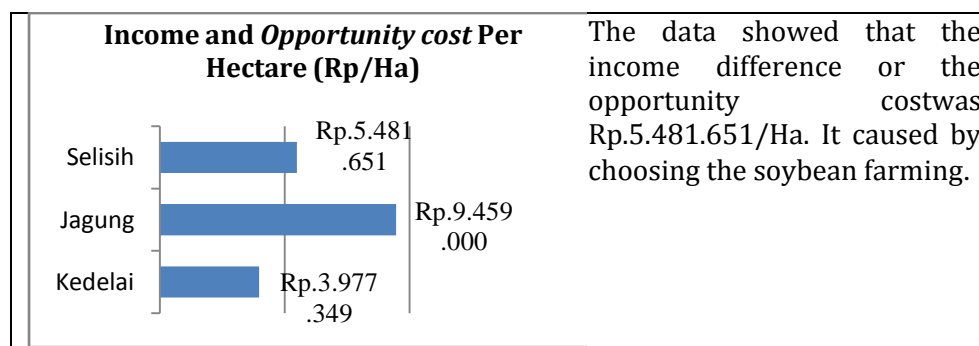
Table 1 indicates some differences which seen in several components ;

- a. Production; The production of soybean and corn in table showed that the total production of soybean and corn were 1.175 Kg/Ha 4.778 Kg/Ha, respectively. The more detailed data is shown in figure 1.



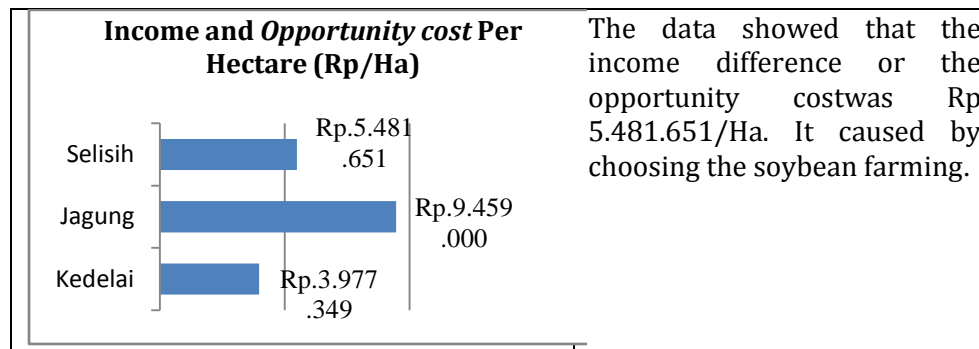
Source: Table 1, analyzed in 2016.

- b. Price; The selling price of soybean per kilogram (Glycine max L Merrill) based on Table 1 was Rp.7.000 / kg, while the selling price of corn was Rp.3.000 / Kg, it showed a big enough difference of Rp 4.000 / Kg.
- c. Production cost; The production cost of soybean and corn based on Table 1 showed the difference, in which the production costs of soybean and corn were Rp 4.247.651 /Ha and Rp 4.875.000/Ha, respectively. The detail of production cost is shown in figure 2.



Source: Table 1, analyzed in 2016.

- d. Income and Opportunity Cost; the difference of income based on table 1 showed that the income of soybean and corn farming were Rp 3.977.349./Ha and Rp 9.459.000./Ha, respectively. The detail of data is shown in figure 3.



Source: Table 1, d analyzed in 2016.

2. Difference test analisis of the income of soybean and corn farming

Difference test analysis of soybean and corn farming incomes was concluded based on the average of the total land (1 Ha). The data then used to analyze the difference level to be used in the analysis of opportunity cost of utilized land. The result of the difference level was obtained using SPSS 20 software to know the significance different.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	K_soybean	4018500,03	30	647845,478	118279,861
	corn	9550000,00	30	2172665,215	396672,583

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	K_soybean and corn	30	,141	,758

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 soybean - corn	-5531499,967	2178087,677	397662,584	-6344811,272	-4718188,662	-13,910	29	,000

Hipotesys :

Ho : There is no difference of income between soybean and corn farming.

Ha : There is a difference of income between soybean and corn farming.

Decision:

If Sig > 0.05 ,Ho is accepted.

If Sig < 0.05, Ho is rejected.

The test result which showed Sig. 0,000 < 0.05 suggested that Ho was rejected (there is no difference in income between soybean and corn farming) and Ha is accepted (There is a difference in income between soybean and corn farming).

D. Conclusion

Based on the results and discussion, it can be concluded as follows:

1. The Opportunity Cost due to the land utilization of soybean was Rp.5.481.651/Ha.
2. There is a significant difference of land utilization of soybean and corn farming.

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