Comparative analysis of production and income of rice farmers using and not using people's business credit (KUR)

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Abstract. The agricultural commodity that is expected to move positively in terms of increasing production and income is rice. One of the methods used is the provision of capital to control production inputs. One of the methods used by the government is to provide loans, namely the people's business credit program (KUR). The purpose of this study was to analyze the comparison of production and income of rice farmers using and not using KUR in Balirejo Village, Angkona District, East Luwu Regency. The analysis technique used is the farm income analysis method. The results of this study indicate that from the results of comparison of production, the average income of farmers who use KUR is lower than farmers who do not use KUR. Farmers who use KUR have an average income of IDR 17,634,912 while farmers who do not use KUR have an average income of IDR 17,886,204.

1. Introduction
The role of the agricultural sector in the national economy is very important and strategic, because the agricultural sector can provide employment for most rural communities and produce food for the population. The agricultural sector also provides raw materials for industry and contributes to the country's foreign exchange through non-oil and gas exports, even the agricultural sector has been able to become a safety valve for the national economy in facing the economic crisis that has hit Indonesia in the last decade. One of the agricultural commodities that are expected to move positively in terms of increasing production and income is rice. The sustainability of rice production is very important to be maintained considering its role as a staple food. Besides that, it is also a strategic commodity in maintaining food security.

However, agricultural sector actors still experience many obstacles in capital to optimize their business. Based on theoretical phenomena, the farmers who belong to the low economic class tend to be more due to the narrow land holdings so that the productivity yield will be smaller and will have an impact on the low income of farmers. Over time the government has launched various credit program policies, several credit programs for the agricultural sector have undergone changes in terms of distribution procedures, size and form of credit, loan interest and repayment grace periods.[1].

To achieve high productivity is not easy, it takes various supporting factors in order to be successful. This is related to the high cost of production factors, both purchase and rental costs. Purchase costs include, among others, the provision of quality superior seeds, fertilizers, and pesticides, while rental costs include rental costs for labor and production machinery. This can further
hamper the achievement of food security and increase the welfare of farmers because small farmers will find it increasingly difficult to meet the high costs of production factors[2].

The People's Business Credit Program is an investment credit and/or working capital provided by executing banks to farmers or breeders directly through farmer groups or cooperatives. The source of funds comes from banks with subsidized interest rates for farmers provided by the government through the Ministry of Finance. The low access of farmers to sources of financing is due to several factors, especially the small scale of the business so that they do not have the ability to accumulate capital. Meanwhile, the weak access of smallholders to formal sources of capital is due to uncomplicated procedures and requirements that must be met by farmers[3]. The reason for using KUR is that the interest rate charged to farmers is relatively low. The low interest rate of KUR loans due to the interest subsidy provided by the government of 9% is also the reason people choose this people's business credit to be one of the solutions to increase capital for spinach farming businesses that it runs. The increase in the amount of KUR and low credit interest is expected to help farmers in increasing production and income generated.

East Luwu is one of the regencies in South Sulawesi that is expected to increase rice production and productivity. Average rice productivity (rice fields and rice fields) in East Luwu Regency in 2017 amounted to 72.10 Tons / Ha with a harvest area of 42,789 ha and production of 308,404.19 tons. But the figure is certainly not only contributed by farmers who use credit. The results can certainly increase, According to Dewi (2015) in her research entitled "The Role of Food and Energy Security Credit in Increasing Rice Production and Income in Kampar Riau Regency" suggests that the credit used plays a role in increasing rice production by 18.93%. On the other hand, credit will not have a positive effect on increasing production if the credit distributed to farmers is not used for farming but is used for non-agricultural businesses that are not in accordance with the allocation of the appropriate credit utilization (fungibility of credit)[4].

The problem is also suspected to be one of the causes of the non-optimal role of credit to increase production and income of farming. Based on this, this study aims to analyze the comparison of production and income of rice farmers who use and who do not use KUR in Balirejo Village, Angkona District, East Luwu Regency.

2. Research methods

The research was conducted from September to October 2018 in Balirejo Village, Angkona District, East Luwu Regency, South Sulawesi Province. The selection of this location is done intentionally (Purposive Sampling) with the consideration that the location is an area with farmers who are developing in terms of the use of People's Business Credit, not all farmers in the place use capital loans programmed by the government.

To analyze the comparison of production and income of rice farmers who use and who do not use KUR in Balirejo Village is done by analysis method of agricultural income. The agricultural income formula proposed by Soekartawi (1995) is as follows:[5]:

\[ Pd = (TR - TC) + Pr \]  \hspace{1cm} (1)

information:
- \( Pd \) = Farmer income (IDR/years);
- \( TR \) = Total revenue (IDR/years);
- \( TC \) = Total cost (IDR/years);
- \( Pr \) = Premium for certified farmers (IDR/years).

Total Revenue is the total revenue of agricultural businesses from the sale of a number of products (goods produced). The ways to calculate total receipts are:

\[ TR = Q \times P \]  \hspace{1cm} (2)

information:
- \( TR \) = Total revenue of farming;
Q = Number of products produced;
P = Selling price per unit.

Total Cost is all issued for a production process stated in units. The cost is divided into fixed and variable costs. Ways to calculate the cost are:

\[ TC = TFC + TVC \]  

Information:
- TC = Total cost
- TFC = Total fixed cost
- TVC = Total variable cost

Revenue Cost (R/C Ratio) In farming, to find out whether a farm is profitable or not, can be analyzed using R/C ratio analysis, i.e. comparing (ratio) of total revenue to total cost. The R/C ratio formula is as follows[5]:

\[ R/C = PT/BT \]  

Information:
- R/C = Acceptance ratio and cost
- PT = Total revenue (IDR)
- BT = Total cost (IDR)

The measurement criteria in the R/C ratio are as follows:
1. If R/C > 1, it means that the farming experienced a profit;
2. If R/C < 1, it means that the farming has suffered a loss;
3. If R/C = 1, it means that the farming that is being carried out is breaking even (no profit and no loss).

3. Results and discussion

3.1 Comparative analysis of production and income of rice farmers using and not using people’s business credit (KUR).

Analysis of farm income is important to know in order to provide an overview of the benefits of farming activities. In the cost component, the cost incurred by farmers consists of variable costs and fixed costs. Variable costs consist of the cost of production facilities used in rice farming such as seeds, fertilizers, pesticides, labor costs, and the cost of renting tools from land processing to harvesting. While the fixed cost consists of land tax and the depreciation value of tools owned by farmers.

3.1.1 Rice farming income using KUR and not using KUR. Farmer income is the difference between gross income (output) and production costs (inputs) calculated in monthly, annually, per season. So that revenue according to Shinta (2011), that is the difference between total receipt (TR) and total cost (TC)[6]. The purpose of income analysis is to find out the amount of net income received in rice farming. Farmers’ income level is generally followed by several components, namely the amount of production, selling price, and costs incurred by farmers in their agriculture. While the income of farmers who use and farmers who do not use KUR is the difference between the receipt of agricultural production and the total cost spent per hectare in one growing season can be seen in table 1.
From table 1 it can be seen that the average income of rice farmers who use KUR is higher than farmers who do not use KUR in Balirejo Village, Angkona District, East Luwu Regency 2019. The difference in the average income of production obtained by farmers who use KUR and farmers who do not use KUR is IDR 28,035,671 compared to farmers who do not use KUR with average income IDR 27,898,068. This difference occurs because of the difference in the average amount of production produced by farmers who use KUR and farmers who do not use KUR. However, the average income of farmers who use KUR is lower than the average income of farmers who do not use KUR. Farmers who use KUR have an

**Table 1.** Comparison of farmers income using KUR and not using KUR in Balirejo Village, Angkona District, East Luwu Regency 2019.

| No | Farming description | Farmer Who UseKUR | Farmer Who Don’t UseKUR |
|----|---------------------|------------------|-------------------------|
| A | Revenue |
| Production (Kg) | 15,114 | 4,000 | 28,035,671 | 13,903.1 | 4,000 | 27,898,068 |
| B | Variable cost |
| a. Seed (Kg) | 42.69 | 9.240 | 387.103 | 41.58 | 7.726 | 315.186 |
| b. Urea Fertilizer (Kg) | 3.33 | 95,000.00 | 316,666.67 | 2.63 | 95,000.00 | 249,814.81 |
| c. SP-36 Fertilizer (Kg) | 4.5 | 105,000.00 | 378,000.00 | 4.048 | 105,000.00 | 330,555.56 |
| d. Phoska fertilizer (Kg) | 20.13 | 120,000 | 2,416,000 | 16.78 | 120,000.00 | 2,013,333.33 |
| e. Agronik fertilizer (Kg) | 6 | 25,000 | 150,000.00 |
| f. Tabas | 2.57 | 250,000 | 274,214 | 2.04 | 250,000 | 245,988 |
| g. Roodstar | 3.18 | 125,000 | 138,889 | 3.45 | 125,000 | 159,325 |
| h. Ricestar | 2.46 | 115,000 | 123,861 | 2.96 | 115,000 | 158,181 |
| i. Basagran | 2.40 | 125,000 | 91,035 | 2.82 | 125,000 | 99,713 |
| j. Benproun | 9.40 | 5,000 | 6,540 | 8.38 | 5,000 | 7,363 |
| k. Endure | 4.00 | 320,000 | 595,385 | 3.04 | 320,000 | 460,153 |
| l. Vircato | 3.38 | 215,000 | 275,119 | 2.65 | 215,000 | 223,342 |
| m. Plenem | 2.85 | 210,000 | 284,315 | 2.64 | 210,000 | 213,259 |
| n. Clesnet | 2.73 | 165,000 | 147,333 | 2.6 | 165,000 | 79,444 |
| o. Regen | 2.60 | 135,000 | 61,500 | 2.56 | 135,000 | 66,000 |
| p. Starban | 1.67 | 155,000 | 51,913 | 2.22 | 155,000 | 52,350 |
| q. Hipo | 4.75 | 50,000 | 28,571 | 2.71 | 50,000 | 25,265 |
| r. Amistartop | 2.33 | 240,000 | 148,655 | 2.00 | 240,000 | 119,633 |
| s. Score | 3.58 | 160,000 | 210,235 | 3.00 | 160,000 | 209,063 |
| t. Tilo | 2 | 100,000 | 30,159 | 2.00 | 100,000 | 12,963 |
| u. Besnoid | 3.20 | 50,000 | 77,599 | 2.93 | 50,000 | 72,293 |
| v. Labor |
| - Land processing (HOK) | 1.73 | 150,000 | 258,840 | 1.05 | 150,000 | 157,319 |
| - Planting (HOK) | 0.33 | 150,000 | 49,643 | 0.20 | 150,000 | 30,556 |
| - Planting cost | 200,000 |
| - Fertilization (HOK) | 28.27 | 25,000 | 320,324 | 22.56 | 25,000 | 278,804 |
| - Weeding (HOK) | 3.09 | 125,000 | 386,010 | 2.42 | 125,000.00 | 302,388.30 |
| - Sprayer (HOK) | 10.07 | 70,000.00 | 368,103.03 | 9.67 | 70,000.00 | 397,740.74 |
| - Harvesting tools | 58.89 | 30,000.00 | 1,766,562.77 | 0.71 | 1,864,466.67 | 1,339,558.67 |
| - Transportation | 58.89 | 14,866.67 | 873,433.77 | 59.7951793 | 127,400.74 | 766,027.63 |
| - Tractor operation | - | - | 600,000.00 | - | - | 1,055,555.56 |
| - Solarcost | 15 | 700 | 105,000.00 | 7.4074074 | 700 | 51,851.85 |
| C | Fixed cost |
| 955,046 | 549,565 |
| a. Land tax (IDR) | - | - | 27,291.67 | - | - | 24,537.04 |
| b. Shrinkage of tools |
| - Tractors | - | - | 613,428.33 | - | - | 502,993.03 |
| - Sprayer | - | - | 161,007.22 | - | - | 250,121.69 |
| - Hoe | - | - | 10,463.60 | - | - | 22,283.60 |
| - Sickle | - | - | 15,447.26 | - | - | 16,882.89 |
| - Atabla | - | - | 30,341.27 | - | - | 5,000.00 |
| - Alkona | - | - | 120,746.75 | - | - | 110,357.14 |
| D | Total cost (B+C) | 10,400,758.81 | 10,411,863.67 |
| Gross income (A-B) | 18,589,957.72 | 18,435,769.25 |
| Net income = A-(B+C) | 17,634,912.18 | 17,886,304.52 |

*Primary data after processing, 2019.*
average income of IDR 17,634,912 while farmers who do not use KUR have an average income of IDR 17,886,204. This is due to the difference in total costs between these two farmer groups. Farmers who use KUR have a total cost of IDR 10,400,758, which is greater than farmers who do not use KUR who have a total cost of IDR 10,011,863. From the results of this income comparison, the difference in income between farmers who use KUR and farmers who do not use KUR is IDR 251,292. This shows that there is not much difference between the income of farmers who use KUR and farmers who do not use KUR.

3.1.2 Comparative analysis of R / C Ratio of farmers' rice farming using KUR and not using KUR. Farming income is a remuneration for the use of production factors and one of the indicators in an ongoing business period. The analysis carried out includes analysis of income and analysis of R / C ratio of rice farming. R / C Ratio stands for Return Cost Ratio, or known as the ratio (nisbah) between revenues and costs. Mathematically, this is written: \( a = \frac{R}{C} \) Description: \( a \) = comparison (ratio) between revenue and costs, \( R \) = revenue, \( C \) = cost. Test criteria: if \( \frac{R}{C} > 1 \), feasible to cultivate and if \( \frac{R}{C} <1 \), not feasible[5]. Comparison of R/C ratio of farmers who use KUR and do not use KUR can be seen in table 2.

Table 2. Analysis of R/C ratio (Ha/MT gadu) of farmers who use KUR and do not use KUR in Balirejo Village, Angkona District, East Luwu Regency, 2019.

| No. | Description  | Farmer who use KUR | Farmer who dont use KUR |
|-----|--------------|---------------------|-------------------------|
| 1.  | Reception    | 28,035,671          | 27,898,068              |
| 2.  | Total cost   | 10,400,758          | 10,011,863              |
| R/C Ratio | 2,695       | 2,786               |

Source: primary data after processing, 2019.

Table 2 shows that the results of the R / C analysis of farming ratios carried out by farmers using KUR and farmers not using KUR are profitable and feasible to operate. Even though with a very small difference, the R / C ratio value for farmer farming that does not use KUR is higher than that of farmers using KUR. This shows that the farms run by farmers who do not use KUR are more profitable than those that use KUR. This is in accordance with the opinion of Soekartawi (1995) which states that if the R / C ratio > 1, then the business being run experiences a profit or is feasible to develop[5].

If seen from the results of R/C ratio of farmers who use KUR and do not use KUR has a value > 1. The R/C value ratio of farmers who use KUR of 2,695 means that every farmer who uses KUR spends IDR 1,- farmers will get an additional receipt of IDR 2,695,- per hectare, while the R/C value ratio for farmers who do not use KUR of 2,786 means that each cost of IDR 1,- issued by farmers will get an additional receipt of IDR 2,786, - per hectare. This insignificant difference indicates that these two groups of farmers have done farming properly to be developed.

4. Conclusion
The average income of farmers who use KUR is lower than that of farmers who do not use KUR. Farmers who use KUR have an average income of IDR 17,634,912 while farmers who do not use KUR have an average income of IDR 17,886,204.

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