The Function of Credit Scheme to Improve Family Income among Beef Cattle Farmers in Central Java Province

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Abstract

The aims of study were: (i) identify of beef cattle fattening credit scheme, (ii) calculating and analyze of beef cattle farmers' income, (iii) analyze of factors influencing beef cattle credit scheme towards farmer's income. The research was held in five regencies in Central Java Province. Beef cattle fattening farm was standardized as an elementary unit. Survey method was used, while Two Stage Cluster Purposive Sampling was used for determining of sample. Data were analyzed using statistical method of quantitative descriptive and inferential statistics in term of income analysis and multiple linear regression models. The result showed that farmers used their own capital to run the farm. The average amount was IDR 10,769,871. *Kredit Ketahanan Pangan dan Energi* was credit scheme which was dominantly access by farmers. The average credit was IDR 23,312,200/farmer with rate of credit equal to 6.46%, the time of credit returning equal to 24.60 monthand the prediction of average collateral equal to IDR 35,800,00. The average of farmers' income was IDR 4,361,611.60/2.96 head of beef cattle/fattening period. If the labour cost did not calculate as a cost production, hence the farmer' income was IDR 7,608,630.41 or in other word the farmer' income increase 74.44%. Factors of credit scheme which partially significant influence to the farmers' income were number of own capital usage and value of credit collateral. Meanwhile, name of credit scheme, financing institution as a creditor, amount of credit, rate of credit scheme and time of returning credit were not significantly influence towards farmers' income.

1. Introduction

Beef cattle have been played as one of important income for villagers in Indonesia as well as family nutrient sources. Meat consumption from beef product have been increased, however national meat production have not been fulfil national consumption. Hence, there was gab between supply and demand of beef product [1; 2].

Beef cattle farming system have been run by the farmers and their family in Central Java, and it occupied both lowland and highland. There are two type of beef cattle farming systems in Central Java Province, namely *pola penggemukan* (dry lot fattening)and *pola perbibitan* (cow-calf operation). [3] told that the average of cattle ownership for dry lot fattening and cow-calf operation farming system are equal to 2,96 head/cattle and 2,40 head/cattle, respectivelly. Beef cattle farming system in

Central Java is based on smallholder farming system and most of the farmers did not think about being commercial farming system [4].

Farmers faced several problems, such as low productivity, poor management practices, and limited access to bank loan. Several efforts have been done by the government to improve productivity of beef cattle farming system, for example: (i) Artificial Insemination Programme; (ii) feed subsidies; (iii) improve farmers' knowledge through agriculture extension program; (iv) Some of the services provided by the government, such as training and credit scheme. Credit scheme was lauched by Indonesian government to farmers to increase farming' productivity with the loans coming collateral-free and subsidised interest rates. Several credits for farmers were called *Kredit Usaha Pembibitan Sapi* (KUPS), *Kredit Ketahanan Pangan dan Energi* (KKPE). The aims of the credit scheme were to improve farmers' access to the bank loan as well as to create opportunities by providing loans which will help the farmers to utilise their resources and skills. However, how does the actual function of credit scheme to improve farmers' income among beef cattle farmers have not been identified. Based on consideration above mention, the aims of study were: (i) identify of beef cattle fattening credit scheme, (ii) calculating and analyze of beef cattle farmers' income, (iii) analyze of factors influencing beef cattle credit scheme towards farmer's income.

2. Materials and Methods

The study was focus on beef cattle fattening farming system. Data were gathered from primary data through interview. In addition, secondary data were gathered to improve during data analysis through government offices or farmers' group. It followed by data entry process and data analysis. Survey method was used in this research based on interview with the beef cattle farmers who got benefit from credit scheme. Two stage's clustered purposive quota sampling was used for sampling methods. There were five regencies in Central Java Province as primary unit (Grobogan Regency, Blora Regency, Rembang Regency, Wonogiri Regency, dan Boyolali Regency). Five regencies were chosen based on five biggest beef cattle population in Central java Province. Meanwhile secondary unit was the beef cattle farmers who got benefit from credit scheme. In total, there were 50 respondents in this research with 10 farmers/each regency. Data were analyzed through editing, coding, and tabulating. Moreover, data were analyzed using financial analysis and multiple regression analysis.

TC : TVC + TFC
TR : $\Sigma (Q_i . Hq_i)$
TC : Total cost (rupiah)
TVC : Total variable cost (rupiah)
TFC : Total fixed cost (rupiah)
TR : Total revenue (rupiah)
Qi : Another income from farming activities, such as selling manure
Hq_i : Price/product (Rp/kg)

Income analysis:

π : TR – TC

Multiple regression analysis:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_{7+} \mu$$

Note :

Y	:	Income (rupiah)-dependent variable.
α	:	intercept
β_1 s/d β_6	:	Coefficient regression
X_1	:	Total asset (rupiah)
X_2	:	Name of credit scheme (score)
X_3	:	Name of bank institution (score)
X_4	:	Total loan (rupiah)

X_5 : Credit interest rate (persen)
X_6 : Repayment period (bulan)
X_7 : Collateral value (rupiah)
μ : Disturbance variables

3. Result and Discussion

There were three types of cattle breeds to rise in Central Java. Simmental – Ongole Crossbreed or *simmental-peranakan ongole* (SPO) was the biggest cattle bread to raise (58%), it followed by Ongole Crossbreed (*peranakan ongole,* PO) (32%,) and limousine-Ongole Crossbreed or *persilangan limousine dengan peranakan ongole* (10%). Most of the farmers had 2.96 head/cattle and it was raised for 8.18 months and average daily gain equal to 0,64 kg/cattle/day. Average daily gain was lower than a research by [5]. The average daily gain was 0.72kg/cattle/day with forage and feed concentrat of 4kg/cattle/day as the main source of feeding resources [5]. In his research, [6] concluded that average daily gain was amounted to1,18 kg/cattle/day for LPO and 0,90 kg/cattle/day of SPO. The low productivity of fattening farming system in Central Java can be explained by the low feed quality resources, limited access to high-quality genetics, cattel feed efficiency, and the age of cattle [7]

Increase capital of the farmers is one of efforts to improve their saving and investment. The average asset was IDR10.769.871,- (31,60% of capital). It would motivate the farmer to improve their productivity, the lower asset is the better. The credit schemes had been offered by the government were 80% of KKPE (*Kredit Ketahanan Pangan dan Enerji*), followed by 14% of CSR *(Corporate Social Resposibility*), 4% credit scheme offered by private institution, and 2% of KUR (*Kredit Usaha Rakyat*). 74% of the farmers got the loan from BRI (*Bank Rakyat Indonesia*), followed by *Bank Negara Indonesia* (BNI) 8,00%, 2,0% from Bank Jateng, and 2,00% from private institution. BRI was one of government financial institution which was always commit to help farmers through credit scheme with low credit interest rate (6,46%/year). The government wished would improve farmers' livelihood through low interest rate. Based on the result, the average repayment period was 24,60 month. Most of the farmers (94%) used their land as collateral value. It had higher financial value than the credit value. The average collateral value was IDR 35.800.000,- and the average credit value was IDR 23.312.000,-. 56% of the farmer had loan lower than IDR 25.000.000,- 42% of the farmers had loan amounted to IDR 25.000.000,- until IDR 50.000.000,- and only 2% had loan above IDR 50.000.000,-. Meanwhile, the average income of the farmers was IDR 4.361.611,60 (equal to IDR 533.204,35/month). Total Cost, total revenue and income shows in Table 1.

Based on the result, farmers' income without labour cost being calculated was IDR 7.608.630,41 (equal to IDR 930.150,42/month). This research tried not to include labour cost into income analysis because the farmers used family labour in their farming activities and the farmers did not pay for labour cost. Moreover, it had low opportunity cost. The farmers' income was higer than a research among PO cattle breed' farmers in Eromoko District Wonogiri Regency by [8]. The research in 2005 told that (i) The cows had 100% ad libitum of forage and mixed with three times feed concentrate per day would gained 0,785 kg/day with famers' income amounted to IDR 637.230,95/head/3months; (ii) The cows had 100% ad libitum of forage and mixed with twice feed concentrate per day day would gained 0,629 kg/day with famers' income amounted to IDR 613.153,25/head/3 bulan; (iii) The cows had twice feed resources per day day would gained 0,547 kg/day with famers' income amounted to IDR 412.739,97/head/3 bulan.

Regression analysis shows that total asset (X_1), type of credit scheme (X_2), and collateral value (X_7), had positive relationship towards farmers' income (Y). Meanwhile, name of bank institution (X_3), total loan (X_4), credit interest rate (X_5), dan collateral value (X_6) had negative relationship towards farmers' income (Y).

$$Y = 0{,}324\ X_1 + 0{,}026\ X_2 - 0{,}025\ X_3 - 0{,}998\ X_4 - 0{,}259\ X_5 - 0{,}107\ X_6 + 1{,}316\ X_7$$

Table 1. Total Cost, total revenue and income of beef cattle fattening farming system in Central Java**.**

No.	Detail		Rupiah
1.	Variable costs		34.946.064,42
	▪ Feeder cattle price	23.758.221,60	
	▪ Forage costs	3.066.597,30	
	▪ Feed concentrat cost	4.874.226,72	
	▪ Labour cost	3.247.018,80	
2.	Fixed costs		402.530,02
3.	Revenue		39.710.206,04
	▪ Main product (the cows)	39.312.275,00	
	▪ Other product (manure)	397.931,04	
4.	Farmers' income		4.361.611,60
5.	Farmers' income without labour cost		7.608.630,41

The result of overall F test for the null hypothesis shows that all independent variables had significant influence towards farmers' income in beef cattle fattening system. Result of t test, total asset (X_1) and collateral value (X_7) had significant influence ($P < 0,05$), meanwhile type of credit scheme (X_2), name of bank institution (X_3), total loan (X_4), credit interest rate (X_5), repayment period (X_6), had no statistically significant influence ($P > 0,05$) towards farmers' income in beef cattle fattening system (Y).

Farmers used their own asset and the loan for beef cattle farming activities. Based on empirical data, average farmers' asset had been allocated for farming activities were IDR 10.769.871,- (31,60% of total capital or amounted to IDR 34.081.870,-). T test shows that total asset had significant influence ($P < 0,05$) towards farmers' income in beef cattel farming system. Hence, if the farmers want to increase their asset while others factors are constant, it would increase farmers' income. Collateral value variable (X_7) is the market value of anything used as collateral by the farmer to support a loan. Collateral value had influence toward farmers' income. Most of the farmers had their land as collateral value or equal to IDR 35.800.000,-. Based on t test value, Collateral value variable (X_7) had statistically significant influence ($P < 0,05$) towards farmers' income. It can be said, if the farmers wants to increase their loan while others factors are constant, it would increase farmers' income.

4. Conclusion

4.1. Conclusion:

1. Farmers owned 2,96 head/cattle with lenght for fattening period of 8,18 month/period and average daily gain (*Pertambahan Bobot Badan*/PBB) of 0,64 kg/day.
2. Data analysis showed that farmers had average total asset amount to IDR 10.769.871, meanwhile KKPE (*Kredit Ketahanan Pangan dan Enerji*) was the dominant credit scheme among beef cattle farmers and BRI (*Bank Rakyat Indonesia*) was dominant financial institution which gave credit to farmers. In addition, the average total loan among beef cattle farmers was IDR 23.312.000,- with

credit interest rate of 6,46%, repayment period of 24,60 month, and collateral value of IDR 35.800.000,-.

3. Average income of beef cattle farmers was IDR 4.361.611,60/2,96 head/fattening period. Meanwhile if the labour cost had not been calculated in production cost analysis, hence income would be IDR 7.608.630,41 (the calculation would be increased amount to 74,44%).
4. Based on multiple regression analysis, the variables of average total loanandcollateral value had significantly influence towards farmers' income. Moreover, type of credit scheme, financial institution, total loan, credit interest rate, repayment period were not significant influence towards farmers' income.

4.2. Recommendations:

1. It needs more efforts to improve farmers' productivity and their income through beef cattle fattening system, sush as: increase total asset, and increase collateral value.
2. The credit scheme program is still relevant to improve farmers' livelihood and need sustainable effort to improve the policy.

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