

The Competitiveness of Beef Cattle Breeding Business on Community Livestock-Based in North Penajam Paser Regency, East Kalimantan Province

Muhamad Haslan Mallu^{1*}, Dwidjono Hadi Darwanto², Slamet Hartono² and Jangkung Handoyo Mulyo²

¹Agricultural Service of North Penajam Paser Regency, Indonesia

²Department of Social Economics, Faculty of Agriculture, Gadjah Mada University, Yogyakarta, Indonesia

Abstract

The biggest challenge in increasing the population of beef cattle and beef production in Indonesia is on the main actor of beef cattle business, farmers. Farmers as the subject and the main player in livestock business are very important in increasing livestock population and beef production. It is because of 99% of livestock business in Indonesia is managed by community livestock business. This study aims to measure the level of profit and the competitiveness of beef cattle breeding business in North Penajam Paser Regency. Furthermore, the results of this study are used as a basic consideration of improvement of beef cattle breeding business performance especially in community livestock-based. The data collection was conducted by using a survey method. Meanwhile the data analysis was conducted by using qualitative descriptive method and Policy Analysis Matrix (PAM) method. Based on the result, the value of financial analysis is 949,803 IDR per head per period and the value of economy analysis is 86,585 IDR per head per period. The result shows that the business is profitable and feasible. Based on the competitive and comparative advantage analysis, the PCR value is 0.77 and the DCR value is 0.96. It shows that the beef cattle breeding business in North Penajam Paser Regency competitively and comparatively has competitiveness.

Keywords: Competitive advantage; Beef cattle breeding; Community livestock breeding

Introduction

The Indonesian agricultural sector has a very strategic role in the national economy for the domestic food needs and being the sector which has most labor. This role will be more difficult to play in the future because the production food capacity is more limited caused by degradation of agricultural land as the effect of land conversion and land use competition.

Beef is one of the food commodities that has contributed to the fulfillment of community nutrition, especially animal protein which support Indonesian human resources. Along with the enhancement of population and improvement of Indonesians' living standard, the demand for the nutritional fulfillment products are also increasing, as well as the demand for the foodstuff such as animal protein. According to the Indonesian Statistics (2014), the enhancement of food demand is caused by large population (255 million people in 2014) with a high growth rate (1.35%/year) with the estimation of 285 million people in 2025.

The beef demand in Indonesia from year to year is increasing. It is affected by the enhancement of population and the enhancement of their knowledge about the importance of animal protein which influence their consumption pattern. Indonesian Statistics and Directorate General of Livestock and Animal Health Services estimate that the national beef consumption will reach 1,045 million tons in 2024 and can be produced domestically for about 546 thousand tons (52%) or the shortage is 499 thousand tons.

In order to achieve the beef self-sufficiency, domestic-scale livestock business improvement program is proved to give significant change especially for breeders. The beef cattle breeding domestic-scale business is extensively run by using conventional way. In this case, the domestic-scale breeders are able to expand their business with sufficient profits. Market potential and supportive resources are supposed to

be an opportunity to develop beef cattle breeding with comparative and competitive advantages in local or export market. Several studies reviewed by Siregar and Ilham show that Indonesian livestock business provides profits and has comparative advantages.

On the other side, there are several factors affecting difficulty in achieving self-sufficiency. In the upper parts, most of the livestock business is small-scale breeders in which with the 1-3 animal ownership scale is only as saving not a major income; the management of livestock is still very simple; livestock productivity is still low. Meanwhile, in the downstream parts are: there are more open market which cause imported product/beef cannot be inhibited if there is no good reason; there is no integrated industrial activities with cattle fattening activities. It tends to use imported product because the price is more competitive. In addition, consumers' reference in beef restaurant and supermarket shows that they prefer to buy imported beef with certain reasons.

Based on the beef self-sufficiency, the focus of beef cattle production improvement is on the competitiveness development of livestock continuously. In order to achieve that goal, the policy maker has to consider certain aspects such as processing, marketing and trading, policy of subsidy of input-output and international trade.

In order to understand the condition of competitiveness of

*Corresponding author: Muhamad Haslan Mallu, Agricultural Service of North Penajam Paser Regency, Indonesia, Tel: 087770102 270; E-mail: yuan.farras@gmail.com

Received September 17, 2018; Accepted October 10, 2018; Published October 16, 2018

Citation: Mallu MH, Darwanto DH, Hartono S, Mulyo JH (2018) The Competitiveness of Beef Cattle Breeding Business on Community Livestock-Based in North Penajam Paser Regency, East Kalimantan Province. Int J Econ Manag Sci 7: 548. doi: [10.4172/2162-6359.1000548](https://doi.org/10.4172/2162-6359.1000548)

Copyright: © 2018 Mallu MH, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

beef cattle breeding business, the research on beef cattle breeding competitiveness has to be conducted for analysing profit level, competitive and comparative advantage of the business.

Research Method

This research was conducted in North Penajam Paser Regency of East Kalimantan Province which focus on two Sub-districts; Penajam Sub-district and Sepaku Sub-district. The locations were chosen based on purposive sampling method as the central area of community-based livestock. The data collection, both primary and secondary were conducted on February- September 2017. The data was collected by using survey method consisting interview, questionnaire and observation by purposively selecting 46 respondents. In addition, the data analysis method was conducted by using Policy Analysis Matrix approach (Table 1).

The first line of the Policy Analysis Matrix contains numbers calculated based on private price which means that actual price actually occur in the market is the real price which is accepted or purchased by economic actors. The second line contains calculation of numbers based on social price or shadow price, which means that the price describes the real social or economic value for the elements of cost and production.

Input or output social price which is internationally traded can be calculated based on the shadow price by using border price. The type of commodity which is imported is by using c.i.f. price while for the exported one is by using f.o.b. price. It should be noted that various adjustments are required at which point of analysis will be performed. The domestic input price is used as the opportunity cost that is known through this study.

The indicator contained in the Policy Analysis Matrix above are financial efficiency and economic efficiency which can be explained as follows:

a. Financial Efficiency/ *Private Cost Ratio (PCR)*

Formula $PCR=C/(A-B)$

where : $C=Cost\ Domestic\ Factors\ Private$
 $A=Private\ Revenues$
 $B=Cost\ Tradable\ Inputs\ Private$

is a private profitability indicator showing ability of the system to pay for domestic resources and keep being competitive. The system is competitive if the PCR value <1, the smaller the PCR value, the more competitive the system.

Description	Reception	Cost		Profit
		Input tradable	Input non- tradable	
Private price	A	B	C	D = A-B-C
Social Price	E	F	G	H = E-F-G
Divergence	I	J	K	L = D-H

- A: Private Revenues
- B: Cost Tradable Inputs Private
- C: Cost Domestic Factors Private
- D: Private Profits
- E: Social Revenues
- F: Cost Tradable Inputs Social
- G: Cost Domestic Factors Social
- H: Social Profits
- I: Output Transfers
- J: Input Transfers
- K: Factor Transfers
- L: Net Transfers

Source: Monke and Pearson (1989) in Akhtar et al. (2007).

Table 1: Policy analysis matrix.

b. Economic Efficiency/*Domestic Resource Cost Ratio (DRCR)*

Formula $DRCR=G/(E-F)$

where : $G=Cost\ Domestic\ Factors\ Social$
 $E=Social\ Revenues$
 $F=Cost\ Tradable\ Inputs\ Social.$

Is a comparative advantage indicator showing the amount of domestic resources that can be saved to generate one unit of foreign exchange. The system has comparative advantage if the DRC value <1, the smaller of the DRC value, it will be more efficient and has more comparative advantage.

Results and Discussion

Private and Social Advantage

The input-output structure of beef agribusiness will illustrate cost structure and acceptance of beef cattle breeding business that will explain cost and acceptance components during one fattening period. The element of acceptance in beef cattle breeding agribusiness is beef cattle sales. The element of cost can be divided into two, namely input tradable covering cost of livestock prospective calf, livestock grass feed, salt and medicines, fuel, while input non tradable covering labor costs, land lease, taxes and capital (Table 2a).

The component of input tradable cost become a larger component of cost compared to input non tradable cost, both private price and social price. The price allocation of input tradable consists of purchase of prospective calf (60.74%), feed cost/HMT (12.48%), salt cost (0.43%), medicines cost (0.12%) and fuel cost (1.72%). The input non tradable cost covers labor cost (15.79%) consisting labor cost of cage cleaning and feeding cattle, meanwhile labor cost of seeking grass is calculated as livestock grass feed. The interest cost of capital (9.24%) is the cost for working capital and investment of cage and equipment of beef cattle agribusiness. The calculation of cost of capital interest at private price and social price is different in this study, hence it resulted different values. The cost of capital interest at private price is calculated from the weighted average of applicable interest of savings in the study area. Meanwhile for the social price, the cost of capital interest and the interest of investment cost is not included as cost. The cost of prospective calf is the highest allocation price (60.74%) of the total cost then followed by cost of labor (15.19%) and cost of feeding (12.48%). These results are not different from the study by Retna Dewi Lestari which resulting the highest allocation price of prospective calf (50.67%) of the total cost; Ida Indrayani get the allocation price of prospective calf purchase 63.9% of the total cost of fattening beef cattle. The large percentage of procurement of prospective calf is a major factor of the high production cost. If the price of prospective calf can be suppressed, it can be expected that the beef price can be cheaper.

According to the analysis result of private and social advantage (Table 2b), it is found that the private advantage price is 949,803 IDR which is profitable and feasible. The input tradable cost incurred by breeders coverings prospective calf purchase, livestock grass feed, salt, medicines, and fuel cost. Meanwhile for the input non tradable cost, it covers labor cost, working capital and investment capital cost, cage and equipment shrinkage cost and land lease cost. The value of acceptance and tradable input cost at the private price is higher than the social price. This is due to the total cost of tradable input paid by breeders is more expensive than the real price (social price). The higher private acceptance is probably caused by the import tariff policy of beef cattle,

Serial no.	Description	Volume	Private price (Rp)	Price allocation %	Social price	Price allocat (%)
Input Tradable						
1	Prospective	174.12	78,35,400	60.74	8,205,05	67.03
2	Salt and Medicines:				7	
a	Grass (Kg/head/ period)	6,441	16,10,250	12.48	1,535,72	12.55
b	Salt (Kg/head/ period)	15,32	55,714	0.43	8	0.17
c	Medicine (Package/head/period)	1	15,000	0.12	20,625	0.12
3	Fuel (Liter/ head/ period)	30.36	2,30,736	1.79	15,000	
	Sub Total		97,47,100		2,73,240	2.23
Input Non Tradable						
1	Labor (HOK/ head/ period)				50	
a	Cage Cleaning	13.59	13,59,000	10.53	1,296,07	10.59
b	Feeding and Drinking	5.91	5,91,000	4.58	8	4.6
2	Capital (IDR/period)				5,63,637	
a	Interest cost of investment		3,52,209	2.73	0	0
b	Cage and tool shrinkage		3,28,066	2.543	3,28,006	2.68
c	Interest cost of working capital		5,11,235	3.963	0	0
3	Taxes		9,229	0.072	0	0
4	Land lease (ISR /period)		2,628	0.02	2,592	0.02
	Sub Total		31,53,367		2,190,31	
					3	
	Total Cost		1,29,00,467	100,00	12,239,9	100
					63	
	Cost	241	1,38,50,270		12,326,5	
					48	
	Income		9,49,803		86,585	

Source: Primary Data Analysis (2017).

Table 2a: Cost Structure and Acceptance of Beef Cattle Breeding in North Penajam Paser Regency (IDR/head/period), 2017.

Description	Acceptance	Input Cost		Advantage
		Tradable	Non Tradable	
Private Price	1,38,50,270	97,47,100	31,53,367	9,49,803
Social Price	1,23,26,548	1,00,49,650	21,90,313	86,585
Divergence	15,23,722	-3,02,550	9,63,054	8,63,218

Source: Primary Data Analysis (2017).

Table 2b: Private and Social Advantage of Beef Cattle Breeding Business in North Penajam Paser Regency, 2017.

the imposition of import tariff policy and income tax on tradable input cost. In addition, non-tariff policy in form of import limitation of cattle and beef quota causes the reduction off meat supply especially in Eid al-Adha day when the beef cattle demand is higher than any other days. Similarly, at the private price, the input non tradable cost is higher than the input non tradable cost at social price. It is because of the cost of capital interest and the interest cost of investment and also taxes are calculated as cost while in the social price, those are not calculated as cost [1].

The beef cattle agribusiness advantage at the social price gives positive value 863,218 IDR which is profitable and feasible. The input tradable cost incurred by breeders is lower than the private price. It is because the price of prospective calf is cheaper than the actual price in which the border price is used at the social price. It is also happened in the input tradable cost and non tradable cost which are cheaper than the actual price. However, at the social price level, in which breeders pay cheaper input price than the private price, the social price advantage obtained by breeders is higher than its acceptance. These results are similar to the results from the study by Ida Indrayani "analysis of fattening beef cattle business production and competitiveness in Agam Regency of West Sumatera" which is profitable both private and social price, 1,540,709 IDR (private price) and 503,086 IDR (social price).

Competitive and comparative advantage

The efficiency level of a commodity's procurement can be observed from two indicators namely competitive advantage and comparative advantage. Competitive and comparative advantage are the measure of competitiveness. Competitive advantage is owned at the actual price level received by farmers by using Private Cost Ratio (PCR) indicator. PCR is a private profitability indicator that shows system's ability to pay for domestic resources and keep it to be competitive. Meanwhile, comparative advantage is happened when the market is not distorted by government policies. It can be assessed by using the social price and Domestic Resource Cost Ration (DRC) indicator. DRC is comparative advantage that shows the amount of domestic resource that can be saved to produce a single unit of foreign exchange.

Competitive advantage is an indicator to observe if a country will succeed in competing in a commodity of international market. Indicator of private advantage is indicated by Private Cost Ratio (PCR) value which shows system's ability to pay for domestic price and makes it to be competitive on the actual market condition. The smaller the PCR value, the less the domestic price based on actual price required to produce output. If PCR value is less than one, the commodity system is competitive. In other words, if PCR value is smaller than one, then the smaller domestic factor price in a single unit is required to increase a single unit of output value added. This means that commodity procurement is financially efficient or has a competitive advantage when there is government policy. Conversely, if PCR value is larger or equal to one, then the larger domestic factor price is required to increase a single unit of output value added.

Domestic Resource Cost Ratio (DRC) is defined as shadow value of domestic input factor used in an activity per unit of tradable value added. A value of $0 < DRC < 1$ shows that the cost of domestic resources

at social price is less than output commodity value added, so the commodity that is analysed has comparative advantage. The value of $DRC > 1$ shows that the cost of domestic resources at the social price is larger than output value added, so the commodity does not have comparative advantage. Similarly, if the value of $DRC < 0$, the value added that is obtained cannot cover the cost of input domestic so that the commodity is not profitable. Monke and Pearson [2] cited in Master and Winter-Nelson [3] state that DRC indicator is obtained by dividing the total value of domestic factor on the difference between acceptance and total of input tradable.

Based on the result analysis, it is found that beef cattle breeding business in North Penajam Paser Regency has competitive and comparative advantage (Table 3). The PCR value has competitive advantage if it has positive value and smaller than one ($PCR < 1$). The analysis shows that the PCR value is 0.769. competitive advantage can be achieved because it results a single unit of value added which needs 0.769 unit of domestic factor. Meanwhile the DRC value has comparative advantage which results 0.962 unit of domestic factor [4-6].

Description	Unit	Value
Competitive Advantage:		
Private Cost Ratio (PCR)	Unit	0.769
Comparative Advantage:		
Domestic Resource Cost Ratio (DRC)	Unit	0.962

Source: Primary Data Analysis (2017).

Table 3: Indicator of Competitiveness of Beef Cattle Breeding Business in North Penajam Paser Regency, 2017.

This result is similar with the study by Dwi Yuzaria et al. on “The Analysis of Profitability, Competitive Advantage, Comparative Advantage, and Impact of Import Policy on Beef Cattle Breeding Business in West Java Province” in which the PRC value is 0.49 and the DRC value is 0.54. This study also shows similar result where the DRC value is larger than the PRC value.

The DRC value on the beef cattle fattening business in North Penajam Paser Regency which is larger than the PRC value ($DRC > PCR$) is suspected that there is government policy that gives incentives or protective to producers of beef cattle breeding. There is an existence of fertilizer subsidies in which can reduce the cost of breeders’s production in the provision of forage as animal feed. Another policy is limitation of the amount of beef cattle import. The criteria imported beef cattle are the weight is less than 350 kg and the beef cattle should comes from countries free of Primary Contagious Animal Diseases [7,8].

Conclusion and Recommendation

The researcher concludes that; first, the process of fattening beef cattle in North Penajam Paser Regency by the breeders is still using traditional pattern which is characterized by the application of cattle breeding management managed by using simple way without using any available technology; second, this business has competitiveness by indicator: analysis of the advantage has positive value both financially or economically which means that it is profitable; Third, the business runs efficiently and has competitiveness both on competitive advantage or comparative advantage. However, the comparative advantage is still weak because the DRC value approaches one.

The researcher has some suggestions for the progress of beef cattle breeding in North Penajam Paser Regency. The government should apply input subsidy and output price protection in order to improve productivity and competitiveness of beef cattle breeding. In addition, the government also should encourage the implementation of beef cattle breeding technology to breeders in order to maximize productivity which can increase the competitiveness itself.

References

1. Akhtar W, Muhammad S, Nadeem A (2007) Analysis of Economic Efficiency and Competitiveness of the Rice Production Systems of Pakistan’s Punjab. *The Lahore Journal of Economics* 12: 141-153.
2. Monke EA, Pearson (1995) *The policy analysis matrix for agricultural development*. (Rev edtn), Cornell University Press. Ithaca and London, UK.
3. Master WA, Winter-Nelson A (1995) Measuring the comparative advantage of agricultural activities: Domestic resource costs and the social cost-benefit ratio. *Amer J Agr Econ* 77: 243-250.
4. Muthalib RA, Firmansyah, Musnandar E (2010) The impact of government policies on competitiveness and efficiency as well as competitive and comparative advantages of smallholder cattle business in the production center of Jambi Province 12: 55-62.
5. Yuzaria D, Suryadi D (2011) Profit Level Analysis, Competitive Advantage, Comparative Advantage, and Impact of Import Policy on Beef Cattle Farming in West Java Province. *Agripet* 11: 32-38.
6. Pearson S, Gotsch C, Bahri S (2005) *Policy Analysis Matrix Application on Agriculture in Indonesia*. Translation. Indonesian Torch Foundation. Jakarta
7. Siregar M, Ilahm N (2003) Efforts to Increase Livestock Efficiency Efficiency Viewed from Aspects. *Competitive Agribusiness. Agro Economic Research Forum* 2: 57- 66.
8. Lestari RD (2017) Competitiveness of Business Fattening of Smallholder Animal Husbandry Cattle in Bojonegoro Regency, East Java Animal Husbandry Bulletin 41: 101-112.