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Profitability of blantic cattle traders as a supply chain institution in Minahasa Regency, Indonesia

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Abstract— *The blantic cattle traders as a supply chain institution in Indonesia play a role in the task of marketing cattle from farmer in the villages to buyers of cattle at the blantic cattle market. This research aims to study the profitability of blantic cattle traders in Minahasa Regency, Indonesia. The data were obtained from direct interviews with blantic cattle traders using questionnaires. The data were analyzed the factors that affect the profit with multiple linear regression. Blantic cattle traders profitability can be seen from the profit generated on profit and costs ratio (pcr) earned at 1.85% which is high. The number of cattle sold has a significant effect on the profits of blantic cattle traders, where every additional number of beef cattle sold by 1 head, the profit will increase by IDR 282,132.71, so that the more the number of cattle sold, the greater the amount of profit obtained. While age, education level, and work experience do not significantly affect the profits of blantic cattle traders. This is because the market demand for cattle tends to increase, therefore blantic cattle traders need to streamline their network with cattle farmers as a supply chain institution to maintain stock and total sales.*

Keywords— ***Blantic, cattle, profitability, supply chain.***

I. INTRODUCTION

Distribution and marketing of cattle commodities is important to meet the increasing demand for food sources of animal protein in developing countries. This function is to facilitate the delivery of cattle from producers (farmers) to consumers. In distribution and marketing, supply chain has become an essential element (Al-Doori, 2019), due to cost reduction and improved customer service, suppliers are constantly looking for innovative ways in supply chain collaboration, involves collaborative work between buyers and suppliers, joint product development, common systems, and shared information (Alexander et al., 2014; Salam 2017; Saroha and Yadav, 2013).

Each supply chain has its own role and function in connecting the production sector to the consumption sector. However, in developing countries, the supply chain of agricultural commodities, including cattle, there is still a supply chain managed by traditional marketing institutions and practitioner participation in the market.

Market participation among beef cattle farmers is key to ensuring better income, food security, and sustainable beef supply. Farmers in the traditional beef cattle sector, nevertheless, are well known for their low market participation (Kibona and Yuejie, 2021), likewise, household beef cattle farmer in Minahasa Regency, Indonesia. Therefore, farmers in marketing their beef cattle need the help of intermediary cattle traders who market their cattle to global market or local traditional animal markets.

The beef cattle marketing system comprises numerous actors, including traders, brokers and butchers (Dahlanuddin et al., 2017). Cattle trading brokers in Minahasa Regency are known as "tukang blante" (blantic cattle trader), it is one of the supply chains institution that

are still traditional, but location-specific and local wisdom, with location the “pasar blante” a traditional animal market. In addition, this blantic cattle market is accessed and used as a place to buy beef cattle by feedlot cattle breeders, cattle wholesale traders, inter-island traders and beef butchers from 12 regency and cities in North Sulawesi province.

The existence of blantic cattle trader and the traditional blantic cattle market has an impact on the advantages of 5 surrounding sub-districts so that it has the largest cattle production and population, and has become a center for cattle production in Minahasa Regency and even North Sulawesi Province. Even with transactions in traditional animal markets, it increases income for cattle farmers, blantic cattle traders and is proven to contribute to increasing regional income and driving economic activities in the region (Elly, 2009; Kimbal et al., 2012).

The blantic cattle traders play a role in the task of marketing cattle from farmer in the villages to buyers of cattle at the blantic traditional animal market, which has been going on for a long time, survived and continued until the modern marketing era. So it is necessary to study the profitability of blantic cattle traders in Minahasa Regency.

II. MATERIALS AND METHODS

1. Site, Time and Data Collection

This research was conducted in Kawangkoan, Minahasa Regency, North Sulawesi Province, Indonesia. The research was carried out from April to June 2021. The data used in this study were obtained from direct interviews with blantic cattle traders at the traditional blantic cattle market, using prepared questionnaires. Research respondents are blantic cattle traders in the traditional blantic cattle market, where cattle traders who can sell cattle in this market are only specifically for blantic cattle traders. The population of cattle traders in this blantic market is more than 100 traders, and about 30 to 65 traders (permanent and seasonal traders) every market day. The sample of respondin ents was selected based on the purposive sampling method with several criteria (Etikan et al., 2016), for this study the criteria were permanent (not seasonal) blantic cattle traders, blantic experience of more than 5 years and willing to be a respondent. Blantic cattle traders who met the criteria and were selected as respondents were 30 blantic cattle traders.

2. Data Analysis

The profitability of trading cattle blantic has been measured using profit analysis, with the formula according to Malope et al. (2007), where the notation is changed according to this study:

$$Y = TR - TC \text{ ....} (1)$$

Where: Y is the profit of the blantic cattle trader, TR is total revenue of the blantic cattle trader, and TC is total costs of the blantic cattle trader.

Furthermore, the analysis of factors that influence global profits is analyzed by multiple linear regression, according to the model from Gujarati (2003) :

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u \text{ .... } (2)$$

Where Y is the profit of the blantic cattle trader, X_1 is the number of cattle sold, X_2 is the respondent's age, X_3 is the respondent's education,

X4 is the experience of the blantic cattle trader, $\beta 0$ is a constant, $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$ is the regression coefficient for each variable X, and u is the stochastic error.

Furthermore, the model has been statistically analyzed using the F test to determine the simultaneous effect of the independent variables (Xi) on the dependent variable (Y). While the t test has been used to test the effect of each independent variable (Xi) partially on the dependent variable (Y). The data analysis has used SPSS Statistics software version 25.0.

III. RESULTS

1. Blantic cattle market system in Kawangkoan, Minahasa Regency

Blantic cattle market system in Kawangkoan, Minahasa Regency showed in figure 1, where only cattle blantic traders (cattle brokers) can sell cattles in the traditional blantic cattle market. Cattle blantic traders serve as intermediaries in the buy and sell of cattle between farmers and buyers. Traders serve to help cattle farmers who want to sell their cattle in the animal market, where between farmer and blantic trader deal on a minimum selling price for cattle in the animal market. Likewise, the amount of commission that farmers have to pay to blantic traders according to an agreement that depends market price to be sold at a minimum price from the farmer. If the cattle are sold at the same minimum on the animal unit, the blantic trader will only receive commission income from the farmer as agreed. Meanwhile, if the trader succeeds in selling the cattle above the agreed price with the farmer, the traders receive two kind revenues in the form of commissions from farmers and sales margins (the difference between the selling price and the price agreed with the farmers).

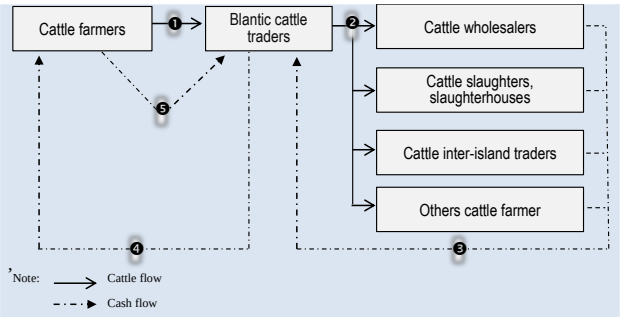

Figure 1 Blantic cattle market system in traditional cattle market in Minahasa

Based on Figure 1 shows the process of the cattle marketing system in the blantic cattle market, Minahasa Regency, as follows:

(1) Cattle farmers in rural area who want to sell their cattle, contact blantic cattle traders to market their cattle. Farmers and blantik will then carry out a dealing process regarding the price of cattle to be sold in the cattle market, with a commission that will be given by farmers to blantic traders. After an agreement is reached, then the blantic cattle trader will pick up the cattle owned by the farmers using an open ladbak car and bring and sell them to the blantic cattle market. Meanwhile, cattle in the rural around the market are only herded by blantic cattle traders on foot to the market.

(2) Blantic traders then bring and sell cattle to buyers (cattle wholesaler, cattle slaughter/slaughterhouses, inter-island traders and others cattle farmer) at the blantic cattle market.

(3) After the buy and sell transaction process takes place (deal), the buyer pays the cattle price to the blantic trader. It often happen, buyers also give commissions voluntarily to blantic cattle traders as has become the custom in this blantic cattle market.

(4) After successfully selling the cattle owned by the farmers in the blantic market, the blantic cattle traders will return to the cattle farmers, then pay or give some money from the sale of the cattle in the blantic market to the cattle farmers.

(5) The farmer then gives a commission to the blantic trader as a service for selling the cattle owned by the farmer according to the commission value they have agreed upon in advance.

2. Characteristics of Respondents

The number of cattle traders in this blantic market is is not much, but it can drive the development of cattle production in the area around the blantic cattle market and drive an increase in the regional economy. From the population, the number of research samples successfully obtained data totaling 30 respondents who met the renpondent criteria namely permanent (not seasonal) blantic cattle traders, blantic trader experience of more than 5 years and willing to be a respondent, with the characteristics consist of age, education level and experience of blantic cattle trader.

Factor age play an important role in human resource and management decisions (Garner and Campos, 2014), and productivity reductions at older ages are particularly strong for work tasks where problem solving, learning and speed are needed, while in jobs where experience and verbal abilities are important, older individuals' maintain a relatively high productivity level (Skirbekk, 2004; Pinto et al., 2014).

Table 1 Characteristics of Blantic Cattle Traders Respondents

No.	Description of characteristics	Proportion of number of respondents by characteristics (%)
1.	Age (years)	
	15 - 30	3.33
	31 - 45	26.67
	46 - 60	46.67
	> 60	23.33
	Total	100,00
2.	Education	
	Primary school	13.33
	Junior high school	26.67
	Senior High School	56.67
	College	3.33
	Total	100,00
3.	Blantic trader experience (years)	
	≤ 10	33.33
	11 - 20	33.33
	21 - 30	13.33
	31 – 40	6.67
	41 - 50	13.33
	Total	100,00

Table 1 shows the age of 73.74 % of respondents ranged from 31 to 64 years. This result is slightly different from the research of Montin et al. (2019) that the age of 64% of people ranged from 25 to 54 years, that represent the characterization of the age of the Brazilians people. The classification of respondents based on the age of blantic traders where most of the age of blantic traders are 46 to

60 years old (senior blantic traders) as much as 46.67%, while the fewest are young people aged 15 - 30 years in fact only 3.33% who are generally kids or former laborers by senior blantic traders. This corresponds to Keating and Little (1997) that parents want that from an early age, children receive messages from their parents about the advantages in their business.

Characteristics of respondents based on education level showed that most of the high school graduates were 17 people or 56.67%, while the least at the college education level was only 1 person with a percentage of 3.33%. High school education level is a good average education that can plan, implement and evaluate. This is because there is a positive relationship between work performance and education level (Doğuş, 2007).

The results showed that the experience of working blantik traders based on Table 1, the highest working experience of blantik traders is at the age of 3 - 10 years as much as 33.33%, and at the age of 11 - 20 years as much as 33.33%, while the lowest working experience is 31 - 40 years as much as 6.67%. In general, respondents have had sufficient experience in trading blantic cattle, so that with this experience, respondents are able to handle all jobs well, this is according to Putri (2020) that work experience has a positive effect on work performance, while job characteristics do not affect work performance.

3. Costs, Revenues and Profit of the Blantic Cattle Trader

Profit is obtained from the results calculation of total revenue less the results calculation of total costs, as showed in equation (1). Total costs for the blantic cattle traders are the costs incurred in the business activities of buy and sell cattle, starting from the costs to cattle farmers in rural, at the blantic cattle market, and returning to cattle farmers in rural, and so on, which consists of transportation, cattle feed and labor costs, and market administrative and fee costs in the blantic cattle market.

The revenue of blantic cattle traders comes from two sources. First, the revenue from the sales margin between the agreed price with the cattle farmer and the transaction price paid by the cattle buyer in the blantic cattle market; and second, the revenue earned by blantic cattle traders as blantic services as blantic services provided by cattle farmers when blantic cattle traders hand over the money from the sale of cattle to the cattle farmers.

Based on Table 2 shows that the total costs incurred by blantic cattle traders are IDR 755.647,500/year with an average of IDR 25,188,250/year per blantic cattle traders. Meanwhile, the income of blantic traders is IDR 2,150,945,500/year with an average of IDR 71,698,183/year per respondent. Thus the results of the study indicate that the profit which is the income of blantic cattle traders is IDR 1,395,298,000/year or an average of IDR 46,509,933/year per respondent. Business effectiveness and efficiency can be seen from the profit generated on profit and costs ratio (pcr). Profit and costs ratio = (profit/total costs) x 100% earned at 1.85% which is high, where the higher the ratio value, the better the business blantic cattle traders condition based on the profitability ratio.

Table 2 Costs, Revenues and Profitability of Blantic Cattle Traders

Description	Amount (IDR/year)	Average (IDR/year/ respondent)
(1) Cost		
▪ Transportation	499,200,000	16,640,000
▪ Cattle feed	14,565,000	485,500
▪ Labor	195,600,000	6,520,000
▪ Market fee	23,200,000	773,333
▪ Market administration	23,082,500	769,417
Total Cost (*TC*)	755,647,500	25,188,250
(2) Revenue		
▪ Margin of cattle sales by blantic traders	1,680,000,000	56,000,000
▪ Blantic service revenue (commissions) from cattle farmers	470,945,500	15,698,183
Total Revenue (*TR*)	2,150,945,500	71,698,183
(3) Profit (*TR* – *TC*)	1,395,298,000	46,509,933

4. Influence of factors on profitability of the blantic cattle trader

There are a number of factors that contribute to the success or failure of a business, for most businesses success is measured by profit. Moreover, while there are a number of factors that contribute to profitability (Zelles, 2015), where for this study the factors or variables related to profitability are the number of cattle sold, age, education and work experience. The results of multiple regression analysis of the effect of variables on the profitability of blantic cattle traders in the traditional blantic cattle market in Kawangkoan, Minahasa Regency can be seen in Table 3.

Based on the results of multiple regression analysis in Table 3, it is known that the R-Square value or the coefficient of determination of the regression results is 0.634. This means that the variable number of cattle sold, age of respondent, education of respondent, and blantic cattle trading experience affects the dependent variable on the income of blantic traders (Y) by 63.4%, while 36.6% is influenced by other variables that are not discussed in this study. The result of the calculation of the F-calculated value is 10.818 (p<0.01). This means that the independent variables of the number of cattle sold (X1), age (X2), education (X3), and work experience (X4) simultaneously have a significant effect on the income variable of blantic cattle traders in Minahasa Regency.

Table 3 Regression Analysis Result Of The Influence Of Factors On The Profitability Of Blantic Cattle Traders In The Traditional Blantic Cattle Market

Variables	Coefficients	t-calc	Sig.
Constant	12,269,641.670	1.204	0.240
Number of cattle sold (X_1)	282,132.716	6.284	0.000**
Age (X_2)	24,989.551	0.212	0.833
Education (X_3)	627,500.293	1.362	0.185
Blantic cattle trading experience (X_4)	4,970.531	0.059	0.954
R-square			0.634
F-calculated			10.818**

Note:

**) is very significant on the significance level $p < 0.01$.

IV. DISCUSSION

The regression coefficient of the variable number of beef cattle sold (X_1) is 282,132.71, meaning that for every additional number of beef cattle sold by 1 head, the profit will increase by IDR 282,132.71, so that the more the number of cattle sold, the greater the amount of profit obtained. This is because the market demand for cattle tends to increase, so it is filled with imports. The main problem of cattle development in Minahasa Regency is the gap between demand (the needs) and supply (availability) of either cattle or feed (Osak et al., 2020). Based on the results of significant analysis obtained a significant value of 0.000 ($p < 0.01$) indicating that the variable number of cattle sold has a very significant effect on the profits of blantic cattle traders. The sale of beef cattle mainly depends on the number of cattle stock of the farmer (Kibona, 2021), therefore blantic cattle traders need to streamline their network with cattle farmers to maintain stock and total sales. Usually they get more profit than the farmer producers, and depend of beef cattle sold at a time (Dinku, 2019).

The regression coefficient of the age variable (X_2) is 24,989.55, meaning that for every 1 year addition to the age of the blantic trader, the profit will increase by IDR 24,989.55. However, based on the results of significant analysis, a probability value of 0.833 ($p > 0.05$) indicates that the age variable has no significant effect on the income of blantic cattle traders. This means that the profits of the older blantic traders are not significantly different from the earnings of the younger blantic traders. In contrast to Skirbekk (2004) that productivity reductions at older ages are particularly strong when problem solving, learning and speed are important, while older individuals maintain a relatively high productivity level in work tasks where experience and verbal abilities matter more. The oldest employees have a lower individual productivity potential than the middle-aged employees. It seems to be most demanding for the oldest workers to keep up with individual productivity potential of younger workers with high average skill loss for the oldest age group or high average skills level for all age groups or both (Børing and Grøgaard, 2021).

The regression coefficient of the education variable (X_3) is 627,500.29, meaning that for every additional 1 year of education for blantic traders, the profit will increase by IDR 627,500.29. Based on the results of significant analysis obtained a probability value of 0.185 ($p>0.05$) which indicates that the variable level or length of education has no significant effect on the profit of blantic traders. Entrepreneurs with higher levels of education should be able to generate greater income. However, in practice the level of education does not really affect the business of blantic traders, this is because of their tenacity and hard work that keeps them qualified. While other opinions that the level of education is an important factor that influences the mindset and performance of human resource. The significant positive effects of formal education and the low of effects of skills on the individual productivity potential (Børing and Grøgaard, 2021).

The regression coefficient for the blantic trader experience variable (X_4) is 4,970.53, meaning that for every additional 1 year of experience working as a blantic trader, the profit will increase by IDR 4,970.53. However, based on the results of significant analysis, a probability value of 0.954 ($p>0.05$) was obtained where this result showed that the experience variable had no significant effect on the profits of blantic traders. Working time, in its various dimensions, includes available empirical evidence influencing the types of flexible working time arrangements (Golden, 2012) and

work experience was not äs important for successfull job performance, however, found a correlation between work experience and job performance (Ochonma et al., 2018; Hunter, 2017).

V. CONCLUSION

Blantic cattle traders profitability can be seen from the profit generated on profit and costs ratio (pcr) earned at 1.85% which is high. The number of cattle sold has a significant effect on the profits of blantic cattle traders, where every additional number of beef cattle sold by 1 head, the profit will increase by IDR 282,132.71, so that the more the number of cattle sold, the greater the amount of profit obtained. While age, education level, and work experience do not significantly affect the profits of blantic cattle traders. This is because the market demand for cattle tends to increase, therefore blantic cattle traders need to streamline their network with cattle farmers as a supply chain institution to maintain stock and total sales.

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