Analysis of Price Selling Effect on Business Income in Mangrove Crab Bone District

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Abstract: *This study aims to analyze the influence of production, selling price, and price of production input to the business income of mangrove crab in Bone Regency. This study used a quantitative approach and implemented in District Cenrana, Bone District, Determination of location done intentionally (purvosive). This research was conducted in February to March 2018. Respondents in this study were selected mangrove crab farmers using sampling method as many as 92 people. The data analysis used is multiple linear regression analysis. The results showed that the increase of mangrove crab income influenced by feed price, the increase of labor wage and land area, while seed price did not have a significant and negative effect to the business income of mangrove crab.*

Keywords: Selling Price, Mangrove Crab, Revenue

1. Introduction

Mud crab (Scylla seratta) is one among the marine fishery commodities that have high economic value in the world market. Very popular with local consumers and overseas and within this commodity has a high nutritional value content, protein and fat, even on crab egg protein content is very high at 88.55%. With the value of such composition, the product is very popular overseas customers and become one of the most prestigious food among them. The United States is absorbing almost 55% of world production of crabs, while other requests come from countries in Europe, Australia, Japan, Hong Kong, Taiwan, Singapore, South Korea.

Bone County is one of the main production areas bakau.yang crab has the potential for aquaculture, especially the cultivation of mangrove crabs. Commodities mangrove crab has long been known by the public through fishing effort. Enterprises mangrove crab has long done to meet the needs of the domestic market. But since 1990, when exports mudcrab started this activity began to increase and develop into a mud crab farming. The cultivation is mostly found in some districts, especially in areas that have beaches like Eastern District of Tanete Riattang, Cenrana, Awangpone and Tellumemiiliki Siattinge the land potential is quite extensive pond ± 3,000 ha and 75%.

The market is a series of cultivation, because of the increased production will have a positive impact in the absence of potential and good market opportunities. Experience shows that many technologies are not developed because the resulting product does not have the certainty of the market inthe economic sense widely. Besides marketing their products need fresh crab crab processed product marketing alternatives to avoid monopoly and competition is getting tighter. Mangrove crab cultivation has good prospects, wide open market share with high economic value. Therefore, the cultivation is expected to increase farmers' income could well increase foreign exchange through exports.
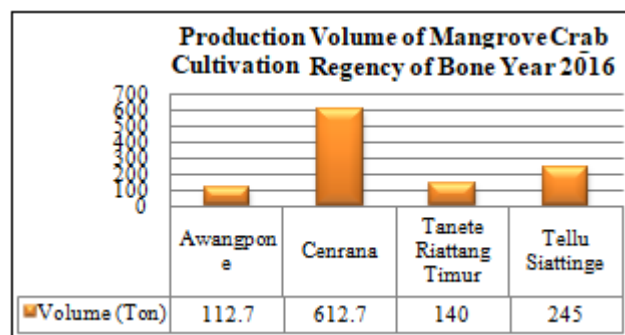
Figure 1: Production Volume of Mangrove Crab Cultivation in Bone District

Figure 1 illustrates that one of the largest mangrove crab producer in Bone regency District of Cenrana. Increasing the amount of mud crab production in 2016 is the largest of the District Cenranasumbangsi. However, as demand for mangrove crabs in Bone regency continues to increase, the number of production has not been able to meet market demand mudcrab although production is ever increasing. It is caused by several factors, including the use of inputs or factors of production less efficient so that production is not optimal. The constraints faced by farmers in terms of production of mud crabs are crabs less availability of seed for seed supply still depends on the nature (of the season) so the seeds are used in the cultivation of crabs caught from the wild was not the result of seeding. Although mud crabs has been successfully cultured artificially, but various limitations make most farmers mudcrab in Bone regency still rely on the supply of seed from the arrest.

2. Review of Literature

2.1 Mangrove Crabs

In Indonesia there are 2 kinds of crab known as traded fisheries commodity / commercial mud crab or crab is mud, in international trade known as "Mud Crab" and the Latin language Scylla serrata. Mud crabs caught from the waters of

the estuary is the mouth of rivers, canals and ponds plots in the area of mangrove forests where these animals live and breed in the wild. Live mud crabs prefer relatively shallow waters with muddy grounds, as it was also called mud crab (Mud Crab) (Kanna, 2002).

Mangrove crab (Scylla serrata) have morphological characteristics that have a carapace width size larger than its own size and the surface is a bit slippery. On the forehead between the eyes that there are six spines addition to the right and left respectively nine spines. Male crabs have claws that can reach twice the length of the kerapasnya. While the female mud crabs are relatively shorter. In addition, mangrove crabs also have three pairs of legs and a pair of foot path pool. Male mud crabs is characterized by lower abdominal tapered triangular form while the female mud crabs, the shape of the abdomen widened (Kasry, 1996).

Amir (1994) in Agus (2008), states that the mud crab in attempting to live their lives from coastal waters into the sea, then the parent trying to get back into coastal waters, estuaries, or mangrove forest for shelter, find food, or grow. Mature female crabs in size between 80-120 mm carapace width whereas physiologically mature male crabs when measuring 90-110 mm carapace width, but not enough to successfully compete for spawning before morphologically mature (ie the size of the claw) with a carapace width 140-160 mm. Mud crabs that are ready to mate will enter mangrove forests and ponds. Crabs mating process is not like the shrimp that only happens at night (dark conditions) but also mud crabs mating during the day. Spermatofor male crabs will be retained in the female crabsspermateka until egg ready to be fertilized. The number of eggs produced in a marriage ranges from 2-8 million eggs (Kordy, 1997).

Mud crabs are organisms that dioceous, means to have male and female genders in different individuals. Differences in male and female crabs can be seen morphologically. The reproductive system of the female crabs consist of ovaries, fallopian tubes, and spermateka, whereas the male crabs consists of the testicles, the vas deferens and ejaculatory apparatus. In females, the ovaries is located in the abdominal cavity, just above the transverse digestive gland, demikan also the male crab. Koksaspermateka tip leads to the third leg of the pair, while the sperm ducts open towards Koksa pair last legs. The tip of the oviduct modified form spermateka and vagina to catch pleopod males. Spermateka size varies according to the volume of sperm contains (Kasry, 1996).

2.2 Sales Price Theory

Price is the replacement value of an item. Definition of prices by Basu is the amount of money (plus a few products that may be) required to obtain a combination of products and services. Philip and Armstrong defines the price is the amount of money charged for a product or service, or a number of value exchanged for consumers on the benefits, for owning or using a product or service (Kotler, 2008).

Prices can also be defined as the amount of money received by the seller and the results of the sale of a product, i.e. goods or services sales that occurred in the company or the place of business (business). The price is not always a desired price by the seller of such goods or services product, but it is a price that really happened in accordance with the agreement between the seller and the buyer (Swastha, 2008). While pricing is a pricing is determined based on the production and marketing costs coupled with a certain amount. In order to be successful in marketing a goods or services, any company must set its price appropriately. The price is the only element of the marketing mix that provide income or revenue for the company, while the third other elements (product, distribution, and promotion) causes the incidence of costs (expenditures). Pricing is becoming very important to note, given the price is one of the causes of the behavior or failure of products and services offered. Errors in setting the price it will be fatal to the products offered and the products he is not resulted. Along with that, the uncertainty of all powers that are not predictable, such as cost, competition and demand would threaten pricing with various difficulties are hidden (Kotler, 2008).

2.3 Revenue

In working out their farming, farmers' costs and revenue. According Soekartawi (2003), the cost of farming is defined as the value of all inputs used up or removed in the production, but excluding family labor of farmers.

Soekartawi (2003) argued that the costs of farming can be classified into two general categories:

1. Fixed Cost
Fixed costs are defined as the costs are relatively fixed, and continue to be issued even though production gained a lot or a little. So the amount of fixed costs do not depend on the size of the production obtained. Examples of fixed costs include: taxes, land rents, farming tools, irrigation fees and others.

2. Variable Cost
The variable cost is defined as the size of the charge which is affected by the production obtained, so that the nature of these costs varies depending on the size of the desired output. Examples of variable costs are input costs include cost of labor and inputs (seeds, fertilizers, feed). According Soekartawi (2003) concept of revenues, expenses and income are closely related to the appearance of farming. Acceptance is defined as the total value of farm products within a specified period, whether sold or not sold. Bookkeeping general term of a year and covers all products sold, consumed by farmers' households, are used in farming for seed or animal feed, is used for payment, and / or stored in warehouse. Having in mind the number of admissions and the cost of farming, the farm income can be calculated. Farm income is the difference between revenues and all costs

3. Research Methods

The research was conducted in the District Cenrana Bone regency, South Sulawesi Province. The timing of the study from February to March 2018 with the number of respondents as many as 92 people.

To determine the influence of factors of production and marketing factors to operating income of mangrove crabs use profit function Cobb-Douglas with engineering unit Output Price or UOP of Cobb Douglas Profit Function (UOP-CDPF), which is a function which involves the production and marketing have been normalized by certain price called the Normalized Profit Function. Cobb Douglas profit function has normalized with the output price, transformed into ln (natural logarithm) as follows:

$$\ln \pi^* = \ln \alpha^* + b_1{}^* \ln x_1 + b_2{}^* \ln x_2 + b_3{}^* \ln x_3 + b_4{}^* \ln x_4 + \mu$$

Information : :

Π^* = The profit of normalized mangrove crab with Price of output (Rp / Ha)

a   = Constant value

b_1, b_2, b_3, b_4, b_5 = Regression coefficients

x_1 = Normalized seed price with output price (Rp)

x_2 = Normalized feed price with output price (Rp)

x_3 = Normalized Labor Wages with Output Price (HOK)

x_4 = Land Area (Ha)

μ = Error Factor

4. Results

4.1. Characteristics of Respondents Farmers

Characteristics of respondents describe the situation and the status of respondents in the business. With the characteristics of the respondents will facilitate in analyzing its business. In this research, the study who had farmers are farmers mudcrab located in Bone regency. Farmers obtained came from the District which is the largest mud crab production center in Bone regency the District Cenrana. Characteristics farmers will be divided into several criteria: age, education level, number of dependents, spacious ponds, land tenure, gender, use production inputs, production and income of mangrove crabs.

Table 1: Characteristics of respondents by age Farmers in the District

No.	Farmer's Characteristics	Total (person)	Percentage (%)
1.	24 – 37	25	27,17
2.	38 – 51	49	53,26
3.	52 – 65	18	19,57
	Total	92	100

Table 1 shows that the age karaketeristik mangrove crab farmers are in the range of 25-65 years. Most farmers in Bone regency respondents are in the age of 38-51 years as many as 49 respondents with a percentage of 53.26%, age 24-37 years there were 25 respondents with a percentage of 27.17% and the age group 52-65 years there were 18 respondents with the results percentage of 19.57%. This shows that the age of the respondent farmers mudcrab still fall within the productive age in trying mudcrab.

Table 2: Characteristics of Farmers respondents according to Education

No.	Farmer's Characteristics	Total (person)	Percentage (%)
1.	SD	43	46.74
2.	SMP	25	27.17
3.	SMA	20	21.74
4.	Sarjana (S1)	4	4.35
	Total	92	100

Table 2 shows that the educational level of the highest mangrove crab farmers at primary school level / equivalent as much as 43 respondents (46.74%), the level of junior / equal as much as 25 respondents (27.17%), the level of SMA / equal as much as 20 respondents (21 , 74%), and the degree of Bachelor / equal as much as 4 respondents (4.35%). The level of formal education in general affects the way a person thinks, and higher education more dynamic attitude towards new things (Effendi and Hutapea, 2010).

Table 3: Average Size ponds, Production, and Uses Production Input Farmers Respondents At Mangrove Crab Enterprises in Bone regency, 2018.

Factor Production	Use of farmers
Pond Area (Ha)	4,75
Production (kg)	573,98
Seed (tail)	4163,04
Feed (kg)	64,91
Labor (HOK)	2,71

Table 3 shows that the average area of pond farmers in Bone regency area of 4.75 hectares with a production of 573.98 kg / farm. Use of the average farmer input in mud crab farming, ie seed 4163.04 tail, feed and labor 64.91 2.71 Kg HOK.

Table 4: Average Production, Revenue, Costs and Effort Respondents Farmers Income Mangrove Crab in Bone regency, 2018
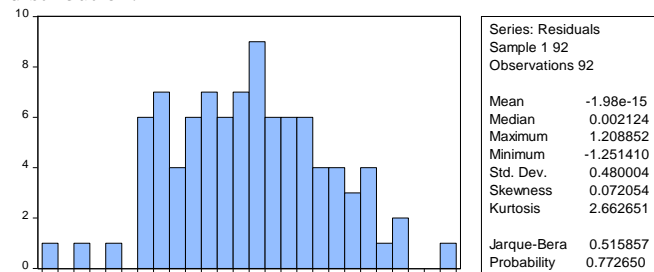
Average	4,75 Ha /year	Per Ha /year	Per Ha/month
Production (kg)	573,98	120,83	12,08
Reception (1)	45.737.554,35	9.628.958.81	962.895,90
Cost			
- Seed	2.268.478,26	477.574,37	47.757,44
- Feed	2.742.554,35	577.379,86	57.737,99
- Labor	2.207.608,70	464.759,72	46.475,97
- Cost of depreciation	752.236,54	158.365,58	15.836,56
- Land / Lease Tax	900.724,64	189.626,24	18.962,62
Total Explicit Cost (2)	7.218.641,31	1.519.713,96	151.971,40
Total Explicit and Implicit Costs (3)	9.193.993,78	1.935.577,63	193.557,80
Revenue (Rp) (1 - 2)	38.518.913,40	8.109.244,92	810.924,50
Profit (Rp) (1 - 3)	36.543.560,56	7.693.381,17	769.338,10

Table 4 shows that the average production of the farmer in the farm land area of 4.75 hectares in Bone regency of 573.98 kg / year. The average profit businesses mud crab is Rp. 36,543,560.56 per year of the total revenue of Rp. 45,737,554.35, - / year has been reduced by a total of explicit and implicit costs (seed, feed, labor, depreciation and other costs) amounting to Rp. 9,193,993.78, - / year, while the income of farmers amounted to Rp. 38,518,913.40, - / year of difference in reception with the explicit cost of Rp. 7,218,641.31, - / year. While the average production, reception, total costs and revenue for per hectare is as much as 120.83 kg / ha reception Rp. 9,628,958.81, - / ha, the total cost of Rp. 1,935,577.63, - / ha and income earned for 1 ha of ponds Rp. 7,693,381.17, - / ha. While the average income earned for each month businesses Rp. 769,338.10, - / month with the amount of production as much as 12.08 kg / month.

5. Discussion

5.1. Normality test

Jarque normality test using the Test-Normaity fallow through Histogram Test. If the data has a probability value Jarque-Bera> Alpha 0.05, the data is expressed in normal distribution.

Series: Residuals	
Sample 1 92	
Observations 92	
Mean	-1.98e-15
Median	0.002124
Maximum	1.208852
Minimum	-1.251410
Std. Dev.	0.480004
Skewness	0.072054
Kurtosis	2.662651
Jarque-Bera	0.515857
Probability	0.772650

Figure 2: Normality Test Results Effect of Production and Wide Input Prices to Revenue Crab Pond

Based on Figure 4.5. indicates that the Jarque-Bera value of 0.515 with 0.772 probabiitas> 0.05 (95% confidence level) which means the residual distributed normally.

5.2. Multikolinerity

Multicolinearity test used to determine whether an independent variable in the regression equation is not correlated with seeing the value of tolerance and the value of Variance Inflation Factor (VIF).

Table 5: Multikolineritas Test Results Influence The Price of Inputs the production of the dan wide Embankment Against Revenues of mangrove Crab

No.	Variable	Nilai VIF
1.	Seed Price (X1)	1,627
2.	Feed Price (X2)	1,159
3.	Wages of Labor (X3)	1,376
4.	Pond Area (X4)	1,113

Table 5 shows that the all the variables that affect the profits of soy had a VIF value of less than 10, so it can be concluded that the regression model is used either because it does not reveal any correlation between independent variables problem or did not happen Multicollinearity.

5.3. Heteroscedasticity

To find out whether or not there is a problem using heteroskedastisitas test Heteroscedastisticity White in Eviews program 9.0. If the value of the Prob. Chi-Squared on Obs * R-Squared is greater than 0.05 alpha then model the regersi free from the problem of heteroscedasticity.

Table 6: Heteroskedastisitas test results Influence the price of production inputs and wide Embankment against Revenues of mangrove Crab.

Heteroskedasticity Test : Breusch-Pagan-Godfrey			
F-statistic	2,003077	Prob. F	0,1011
Obs*R-Squared	7,758284	Prob. Chi-Square	0,1008

Table 6 indicating that the value of Prob. Chi-Squared at Obs * RSquared of 0.1008 is greater than 0.05 alpha means a regression model is homoskedastisitas or in other words

there is no problem assuming non heteroskedastisitas so that it can be concluded that the data on each of the independent variables in the model have a homogeneous variance.

Hypothesis testing and extensive influence input prices added to the revenue mudcrab using multiple linear regression analysis to analyze the coefficient of determination (R2), Test T and F. Test the confidence level used in this study was 90% ($\alpha = 5\%$, $\alpha = 10\%$).

Table 7: Influence of factors of production and the Selling Price against Revenues of mangrove Crab

Variable	Coefisien	Prob.
C	1,446	0,5404
Ln Seed Price (X1)	-0,363^{ns}	0,3876
Ln Feed Price (X2)	0,334**	0,0374
Ln Wages of Labor (X3)	0,663***	0,0002
Ln Pond Area (X4)	0,569***	0,0000
R-squared	0,532	
Adjusted R-squared	0,510	
F-Statistic	27,746	
Prob (F-Statistic)	0,000	

Information: ** = level of confidence95%
*** = level of confidence99%
ns = Non significant

Test F or coefficient test simultaneously conducted to determine the influence of independent variables simultaneously to the dependent variable significantly or not. In Table 4.18.seen that the value of F-count is 27.746 with probability value $<\alpha = 5\%$ that is 0,01. Thus it can be concluded that the independent variables of seed prices, feed prices, wage labor and pond area jointly affect the business income of mangrove crabs.

T test is used to know the influence of each independent variable to the dependent variable. The level of trust used in this study is 99%, 95% and 90% ($\alpha = 1\%$, $\alpha = 5\%$, $\alpha = 10\%$). In Table 4:18 it is seen that mathematically, the regersi model between the income variable of mangrove holditing with the variable of factors influencing it can be written in the following equation.

Ln π * = 1.446 - 0.363 LnX1 + 0.334 LnX2 + 0.663 LnX3 + 0.569 LnX4

of all variables used, only 3 variables that have a significant influence on the benefits of mangrove crabs namely feed prices, wage labor and pond area and 1 variable that does not significantly influence the price of seeds.

6. Conclusion

The increase in operating income is affected by the mud crab feed prices, increasing labor costs and land area, while the price of seed is not significant and negative effect on operating income of mangrove crabs.

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Author Profile

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