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The effect of Panorusan Samosir goat characteristics on its selling price in Sub-district Pangururan, Samosir Regency

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Abstract. Panorusan Samosir goat is an endemic goat of Samosir which is used by local people as sacrificed animal. The objective of this study was to investigate Panorusan Samosir goat characteristics, i.e. Colour, sex, age, weight, and number of demand on the goat selling price. This study was conducted in Pangururan sub district of Samosir Regency for 2 months, i.e. from April 2018 until May 2018. This study used primary data and secondary data either qualitative or quantitative. The independent variables were colour, sex, age, weight, body condition score (bcs) and number of demand, while dependent variable was selling price. Based on the results of the study that independent variable which were colour, sex, age, bcs and number of demand affect selling price significantly ($P < 0.05$). From the results of the determination test, the value of R Square was 0.696 (69.6%), it means that the colour, age, and weight affect the selling price of the goats, but the effect is not too strong at 69.6% and the rest were influenced by other variables

1. Introduction

Local goats of Samosir or Panorusan Samosir goat are genetic resources that need to be developed. Some advantages of Panorusan goat include being able to survive on low-quality feed, to withstand the pressure of the local climate, high resistance to local diseases and parasites. In addition, Panorusan Samosir goat is productive at very low costs, supports agricultural [1] and cultural food diversity, and is more effective in achieving local food safety goals [2]. However, among these advantages there are also some disadvantages, including the performance of body weight and a relatively lower growth rate which is in general 1 or 2 compared to other local goats which is 2 or 3. Goat with high genetic diversity have a higher chance of life to adapt to environmental changes. Goat with these characteristics can make the goat as genetic resources (germplasm) that can be developed for the development and improvement of the genetic quality of the goat nation nationally while maintaining its purity and sustainability [3].

Panorusan Samosir is used by the local community as a goat offering for traditional ceremonies based on an understanding of animism. Goat offerings must be white all over their body including nails and horns. Goats with characteristics like this are called Siladdas by the community. Based on these characteristics, it is known that the population of Panorusan Siladdas is left about 250,000 head around Samosir Island [4].



Panorusan goat prices differ from the prices of goats in general. From the survey results it was known that the price of goats was about 3 times more expensive than the price of ordinary goats. Panorusan goat has been sold also to Java as a goat offering Kejawan understanding [5]. Referring to the potential of selling goat Panorusan, this study aims to investigate what factors greatly affect the selling price of Panorusan goats. The results of this study are expected to be an input for the community in Samosir Regency and Samosir Regional Government.

2. Materials and Methods

This study was conducted in Pangururan sub district of Samosir Regency for 2 months, started from April until May 2018. The data were achievable by doing interview on about 50 local people who has Panorusan Samosir goat. In addition, interview also was conducted on tribal chief of Batak Samosir.

2.1. Types and data sources

The type of data used in this study was quantitative data, namely data in the form of numbers in the study which include, colour, age, sex, weight, bcs and number of demand which were independent variables. Whereas the selling value was the dependent variable (bound). The data sources used in this study were:

1. Primary data is data derived from the results of direct interviews based on a list of questions that have been previously provided by the farmer.
2. Secondary data is data obtained directly from the relevant agencies, namely the Agriculture and Livestock Services Office and BPS. In addition, there were also data from chief tribal of Batak samosir.

2.2. Data analysis

Data analysis in this study was multiple linear regression analysis. Multiple regressions were to determine the effect of independent variables on factors. In multiple regressions there is one dependent variable and more than one independent variable. So that in data processing is used SPSS 17 for windows [6].

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + e \quad (1)$$

Where,

Y = Goat's selling value

a = constant

b₁ = Age regression coefficient

b₂ = Regression coefficient Weight

b₃ = Sex regression coefficient

b₄ = Colour regression coefficient

b₅ = Body Condition Score

b₆ = Regression coefficient of number of demand

X₁ = Age Variable

X₂ = Weight variable

X₃ = Sex Variable

X₄ = Colour Variable

X₅ = Body Condition Score

X₆ = Amount of number of demand

e = total fixed cost (Rp)

The operational concept in this research were the goat appearance production to obtain maximum benefit for farmers for one period in goat farming in Samosir Regency, the age of goats sold by goat farmers in the District of Pangururan, Samosir Regency, the weight of goats sold by goat farmers in Pangururan District, Samosir Regency, the colour which is the appearance types of goats sold by goat farmers in District of Pangururan, Samosir Regency.

Parameters observed in this research were the model Suitability Test (Test of Goodness of Fit); the determination Coefficient (R^2), this coefficient is a measure of the extent to which independent variables can change the dependent variable in a relationship and shows the percentage of free variation [7]; and the coefficient of determination (R^2), which was ranging from $0 < R^2 < 1$ to the test criteria is that R^2 which is closer to 1 indicates that the model formed is able to explain the diversity of the dependent variable, the higher the R^2 value, the better (F-Statistic).

F test is a simultaneous test of the effect of independent variables on fixed variables. The F statistic test shows whether all the independent variables included in the model have a joint influence on the dependent variable.

2.3. Testing criteria

- If sig. $F \leq 0.05$ then H_0 is rejected and H_1 is accepted
- If sig. $F > 0.05$ then H_0 is accepted and H_1 is rejected
- Partial Test (Statistic Test)

The t test is a test of the effect of independent variables one by one affecting the fixed variables. The significance level (α) used is 5%. The t test to be carried out were:

1. Effect of goat's age on the sale value of goats.
2. Effect of goat weight on goat selling value.
3. Gender influence on the sale value of goats.
4. Effect of colour / type on the sale value of goats.
5. Effect of Bcs on the sale value of goats.
6. Influence of the number of requests for the sale value of goats.

3. Results and Discussion

A data analysis technique which was used in this study was Product Moment Correlation Analysis, where this technique was used according to the title of the research and identification of its variables. Product Moment correlation technique was used to analyse the independent variables namely age, weight, gender, colour/type, number of demand and the dependent variable that was selling value. But before the data were analysed by Product Moment Correlation Analysis, it was first tested for assumptions on the variables that were the centre of attention, namely independent variable data consisting of age, weight, gender, colour/type, number of demand of normality test and relationship linearity test. Data analysis testing was carried out using the SPSS for Windows 20.0 program [8].

3.1. Assumption Test

3.1.1 Linearity test

Linearity test is intended to determine the degree of the relationship of the independent variable to the dependent variable. This means that the colour, age, weight, sex, BCS Score, number of demand are related to the selling price of the goat and this can be explained visually by looking at linearity, i.e increasing or decreasing the Y-axis value (selling price of goats) and increasing or according to X axis value (colour, age, weight, sex, BCS Score, number of demand).

Based on the linearity test, it can be seen whether the independent variable with the dependent variable can or is not analyzed in correlation. As a criterion if P Liner < 0.05 , it is stated to have a linear relationship degree [9]. The analysis shows that the independent variable (colour, age, weight,

sex, and number of demand) has a linear relationship to the dependent variable (the selling price of the goat).

Table1. Summary of Calculation Results of Relationship Linearity Test

Correlational	F	P	Note
X-Y	134,408	0.000	Linear

3.2. Results of Calculation of Product Moment Correlation Data Analysis

Based on the results of the analysis with the product moment correlation analysis method, it is known that there is a significant positive relationship between age, weight, and colour with the selling price of the goat, where r_{xy} 0.834 with $P = 0.000 < 0.010$. This means that the greater the age, the greater the colour, weight, sex, BCS score, the high amount of number of demand, the higher the selling price of the goat, and vice versa. The determinant coefficient (r^2) of the relationship between the independent variable (x) and the bound variable (y) is $r^2 = 0.696$. This shows that colour, age, weight, sex, BCS Score and number of demand that affect the selling price of goats is 69.6% while the others are in other factors not examined in this study. The Table below is a summary of the results of the Product Moment r Analysis.

Table 2. Results of the Determination of the Product Moment Coefficient Correlation Calculation (r^2)

Statistic	Coefficient (r_{xy})	Coefficient Determinant (r^2)	BE %
X-Y	0.834	0.696	69.6 %

Table 3. Partial Regression Coefficient Test (t test)

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-353,271.520	98,547.691		-3.585	.000
Age	56,111.283	7,769.574	.379	7.222	.000
Weight	10,530.303	8,977.196	.074	1.173	.242
Sex	524,131.930	40,080.428	.432	13.077	.000
1 Colour	591,942.941	53,006.590	.460	11.167	.000
BCS	-101,721.464	31,551.844	-.140	-3.224	.001
number of demand	153,914.885	10,561.293	.478	14.573	.000
a. Dependent Variable: Price					

Table 4. Determination Test Results (R^2) Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.834 ^a	.696	.690	338,169.537

a. Predictors: (Constant), colour, Weight, age

Based on Table 4, calculation using computerized SPSS 18.0 can be seen that the value of R square generated is equal to 0.696 (69.6%) so it can be interpreted as age, weight, gender, colour/type, bcs score, number of requests related to price selling 69.6% where the rest is influenced by other factors not examined in this study.

The t test is done using the following criteria:

- Hoa: There is no significant effect of Goat Age partially on the sale value of Panorusan Samosir goats
- Haa: There is a significant effect of Goat Age partially on the sale value of Panorusan Samosir goats
- From the Table above, the significance value for the Age variable is equal to ($P = 0.00$) where the value is smaller than the value of $P = 0.05$.
- The criteria are as follows:
- $P < 0.05$: H_0 is rejected, meaning that there is a significant effect of Goat Age partially on the sale value of Panorusan Samosir goats
- Hob: There is no significant effect of Goat Weight partially on the sale value of Panorusan Samosir goats
- Hob: There is a significant effect of Goat Weight partially on the sale value of Panorusan Samosir goats

From the Table above, the significance value for the weight variable is equal to ($P = 0.242$) where the value is greater than the value of $P = 0.05$. The criteria are as follows:

- $P > 0.05$: H_0 is accepted, meaning that there is no significant effect of Goat Weight partially on the sale value of Panorusan Samosir goat
- Hoc: There is no significant effect of Goat Colour partially on the sale value of Panorusan Samosir goats
- Hac: There is a significant effect of Goat Colour partially on the sale value of Panorusan Samosir goats
- From the Table above, the significance value for the Colour variable is equal to ($P = 0.00$) where the value is smaller than the value $P = 0.05$. The criteria are as follows:
- $P < 0.05$: H_0 is rejected, meaning that there is a significant effect of Goat Colour partially on the sale value of Panorusan Samosir goat
- Hod: There is no significant effect of Goat Gender partially on the sale value of Panorusan Samosir goats
- Had: There is a significant effect of Goat Gender partially on the sale value of Panorusan Samosir goats

From the Table above, the significance value for Goat Gender variable is obtained ($P = 0.00$) where the value is smaller than the value of $P = 0.05$. The criteria are as follows:

- $P < 0.05$: H_0 is rejected, meaning that there is a significant effect of Goat Gender partially on the sale value of Panorusan Samosir goats
- Hoe: There is no significant effect of BCS score partially on the sale value of Panorusan Samosir goats
- Hae: There is a significant effect of BCS score partially on the sale value of Panorusan Samosir goats
- From the Table above, the significance value for the BCS Score variable is equal to ($P = 0.02$) where the value is smaller than the value $P = 0.05$. The criteria are as follows:
- $P < 0.05$: H_0 is rejected, meaning that there is a significant effect of BCS score partially on the sale value of Panorusan Samosir goat
- Hof: There is no significant effect Partial Request Amount on the sale value of Panorusan Samosir goats
- Haf: There is a significant influence of the partial number of demand amount on the sale value of Panorusan Samosir goats

From the Table above, the significance value for the Request Amount variable is equal to ($P = 0.00$) where the value is smaller than the value of $P = 0.05$. The criteria are as follows:

- $P < 0.05$: H_0 is rejected, meaning that there is a significant influence in the number of requests partially on the sale value of Panorusan Samosir goats
- Hog: There is no significant influence age, weight, gender, colour/type, BCS Score, Total request simultaneously to the sale value of Panorusan Samosir goat
- Hag: There is a significant influence on Age, Weight, Gender, Colour / Type, BCS Score, Number of Requests simultaneously on the sale value of Panorusan Samosir goat

From the Table above, the significance value for the independent variable is equal to ($P = 0.00$) where the value is smaller than the value of $P = 0.05$. The criteria are $P < 0.05$: H_0 is rejected, meaning that there is a significant influence on age, weight, sex, colour/type, BCS score, number of requests simultaneously on the sale value of Panorusan Samosir goat.

4. Conclusions

Based on the results of the study, that the significance value ($P < 0.05$) were the independent variable, i.e. colour, age, sex, bcs score, number of demand affect the dependent variable which was of selling price of Panorusan Samosir goat. Whereas the weight of goat has no effect on the selling price. From the results of the determination test, the value of R Square is 0.696 (69.6%), it means that the age, weight, and colour affect the selling price of the goats, but the effect is not too strong at 69.6% and the rest is influenced by other variables.

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