

Allocation of Labor Time on Pig Farming in Tenga District South Minahasa Regency

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ABSTRACT

Pig farming in Tenga District, South Minahasa Regency were farming business that is carried out in rural areas, as a side business besides working on corn, rice and coconut farming. The amount of working time allocated by farmers to these businesses varies. This study aims to determine the factors that affect the allocation of labor time in pig farming. The sample location was determined using a purposive sampling method with the consideration that these villages had a large population of pigs, so that Tenga Village, Pakuure Village, and Pakuweru Village were selected in Tenga District, South Minahasa Regency. The sample was determined using the total quota sampling method so that there were 37 farmers. The model used to analyze the factors that influence the allocation of labor time in pig farming is multiple linear regression. The results showed that the allocation of labor time in pig farming was jointly influenced by the allocation of labor time in farming, wages for working in pig farming, the number of livestock ownership and the number of family members. Factors that greatly influence the allocation of labor time in pig farming are the allocation of labor time on farming and wages on pig farming.

Keywords: Pig farming, labor time, allocation

INTRODUCTION

Community welfare was achieved if they have a certain amount of money to pay for their daily needs. Livestock farming is one of the businesses in the agricultural sector that was able to provide a certain

amount of money to farm households. Every member of the household who gives his time to work on a farm business, will get an amount of money which is called income. Pig farming is one of the livestock sector businesses that are run in rural areas in Minahasa Regency [1-2]. Some people in the Tenga District, South Minahasa Regency, also raise pigs. Information from the published results obtained [3], Tenga District has a large population of pigs (third place) in South Minahasa Regency, was 2,992 heads. Based on observations, it is known that pig farming in Tenga District, South Minahasa Regency is cultivated semi-intensively, that is, pigs are kept in pens, either far away from or close to residential areas. Pig pen that is far from residential areas was usually a farm owned by farmers. There are also farmers who rent land to build a pig pen, on the grounds that the location is close to other pig pens.

Labor plays an important role as a factor of production, especially in carrying out the management of a business. Human resources are very important and influence the achievement of business goals. There are two functions carried out by the workforce in achieving business goals [4] such as managerial functions and operational functions. In addition, the amount of labor used in a business is closely related to labor absorption. Especially in rural areas, agricultural business is an effort that is able to absorb labor, so that it can reduce unemployment [5]. The pig farming

business uses family labor such as the farmer and his wife, where the farmers mostly work on pig farming. This is in accordance with the research [6], that the farmer as the head of the household is responsible for the survival and welfare of his family. Working time on a pig farm will generate some income. A person as a provider of labor, gives his time to work in a business, is influenced by the wages of the business. A person will allocate his time in the labor market for wages and satisfaction. The time allocation model is a combination of choices between income and leisure time that provides the same satisfaction [7].

The problem is, farmers generally work on pig farms and also work on farms and non-farms, so farmers have to make decisions about working hours in some of the businesses they are engaged in. Based on observations, farmers work longer on farming than pig farming, so farmers tend to decide to work first on farming (coconut, maize and rice) then on pig farming. However, wages are the main consideration for farmers in deciding the amount of time to be allocated to a business. Farmers work for wages and tend to work in businesses that pay higher wages. If the wages from farming are high enough, the farmers tend to work more on farming and work less on pig farming. The observations show that the wages of pig farming vary due to the input and output prices. If the wages received are high enough, the farmers tend to work in pig farming. Working time on a pig farm has variations for each farmer, according to the number of livestock being raised. Pig farmers in Tenga District, South Minahasa Regency, have 1-6 sows with a working time of about 2-5 hours/day. Based on the research results^[1], working time on a pig farm with thirty pigs can be done by one worker.

Research on the factors that affect the allocation of working time in pig farming is important, so that it can solve the problems experienced by farmers. Research on the allocation of working time and the factors that influence it has been conducted

by several researchers [8-12]. This study is different from previous studies, especially in the use of variables that affect the allocation of working time in pig farming, such as the wage variable for working in pig farming and the variable working time allocation on the farm. This research is important to do to obtain information related to problem solving.

MATERIAL AND METHODS

Sampling methods and data collection

This research was conducted in Tenga District, South Minahasa Regency for 2 months, from December 2020 to January 2021. This study used primary and secondary data. Primary data were obtained from farmers through in-depth interviews using questionnaires to farmers in Tenga District, such as age, education level, number of pigs, farming experience, number of household members, labor, wages and working time. Secondary data were obtained from the publication of the Central Bureau of Statistics and the Agricultural Extension Center. The location is determined by the purposive sampling method [13], which is deliberately based on the consideration that the area has a large population of pigs. The selected villages were Tenga Village, Pakuweru Village and Pakuure Village. The sample of pig farmers was determined using the total quota sampling method [13], namely all pig farmers in the three sample villages with a total of 37 farmers.

Data analysis

Research on the allocation of labor time for pig farming in Tenga District, South Minahasa Regency uses the following multiple regression analysis model.

$$Y = a_0 + a_1 \ln X_1 + a_2 \ln X_2 + a_3 \ln X_3 + a_4 \ln X_4 + e \quad (1)$$

Where Y is the allocation of labor time in pig farming (working people's day/year), X_1 is the allocation of labor time in farming (working people's day/year), X_2 is the wage for working in pig farming (IDR/working people's day), X_3 is the

number of pigs (head/year), and X_4 is the number of household members (people).

RESULT AND DISCUSSION

Characteristics of Pig Farming

The age of pig farmers varies between 20-73 years. The results showed that the age of the farmers was between 20-64 years, so that they were included in the productive age category in accordance with Law Number 13 of 2003. Farmers with productive age have labor that can work optimally^[1]. The education level of pig farmers varies at graduates from junior high school, high school and university graduates. Farmers in general graduated from high school by 67.57%. With this level of education, farmers have skills in raising pigs, and are able to raise pigs so that they can benefit. Formal educational background is one of the supporting factors for understanding the development and management patterns of pig farming^[14].

The farming experience varies between 1-28 years, of which 72.91% have farming experience, namely 1-14 years. This situation is in accordance with the results of the study that 92% of respondents have experience in farming pigs for more than 5 years [14]. Labor is defined as the allocation of labor for household members to pig farming. Based on the results of research^[1] that the workforce in the household consists of farmers, farmer's wives and children. This result is different from the current research, in which pig farms are raised by farmers or farmers' wives. The farmer's wife works only for a short period of time to replace the farmer who is temporarily working on other farms. This is in accordance with research^[16] which shows that farmers have more working time than other household members. This is because the wife is more busy taking care of the household, while the children are in school^[17]. Likewise with research^[14] related to the management of pig farming, respondents rely more on men as their main workers and wives just to help. Farmers allocate work time ranging from 3

hours which is done every day such as mixing feed, feeding and drinking livestock, cleaning stables, and washing livestock which is done by domestic workers. The number of working hours in pig farming by raising an average of 26 pigs is done by 1 person or the farmer himself. The results showed that raising pigs routinely every day was done by the breeders themselves, this is in line with the research^{[15][1]}.

The allocation of labor time is the number of hours of work that the worker spends on a combination model of pig breeding and fattening, in farming such as coconut, maize and rice, and non-farming. The average allocation of working time in the business is described in Table 1.

Table 1: Average Allocated Working Time in the Business

Type of business	Number of Hours Worked (Working person's day/year)	Percentage
Pig farming	106,57	32
On Farming	143,64	42
Non Farming	89,78	26

Based on Table 1, it is known that the workforce prioritizes working time in farming, which is 42% and in pig farming, it is only 32%, also in non-farming, only 26%. The amount of working time on pig farming is described in Table 2 below.

Table 2: The Amount Of Working Time On Pig Farming

Number of Hours Worked (working person's day/year)	Percentage
75-110	32.43
112-125	40.54
126-150	27.03

Based on Table 2, it is known that there are 40.54% of farmers who allocate 112-125 working person's day/year of working time. The number of working hours in pig farming can still be increased and pig farming is able to absorb labor in rural areas, especially pig farming.

Factors Affecting the Allocation of Labor Time in Pig Farming

Testing of the factors that influence the allocation of labor time in pig farming is used multiple linear regression analysis, where the independent variable (independent) is the allocation of labor time in farming (X_1), labor wages in pig farming

(X₂), the number of pigs. (X₃), and the number of household members (X₄) on the dependent variable (dependent) allocation of labor time in pig farming (Y), with the results of regression analysis described in Table 3 below.

Table 3: Results of Regression Analysis of Factors Affecting the Allocation of Labor Time in Pig Farming

Variable	Coefficient
Constant	-17,055***
Allocation of Working Time on Farming	-0,210*
Wages for Pig Farming	2,048***
Number of pigs	0,048
Number of household members	0,018
Information: ***) significant at $\alpha = 1\%$, *) significant at $\alpha = 10\%$	

Based on the regression results in Table 3, it is known that the equation model built includes a good model based on the R² value of the regression results, namely 0.94, which means variable variations, allocation of labor time in farming (X₁), wages for working in pig farming (X₂), number of livestock pigs (X₃), and the number of household members (X₄) can explain the variation in the allocation of labor time variables in pig farming (Y) by 94% and the remaining 6% is explained by variations in other variables outside the model or variables not examined by the researcher, namely variable age of farmers, level of education, farming experience. The results of the calculation of the F-count value, which is 107.38, shows that the number is greater than the F-table value, which is 4.02, which means that the variable of time allocation for labor in farming (X₁), wages for working in pig farming (X₂), the number of pigs (X₃), and the number of household members (X₄) together has a significant effect on the labor time allocation variable in pig farming (Y).

Allocation of Labor Time on Farming

The variable of labor time allocation in farming has a significant effect on the allocation of labor time in pig farming (P < 0.1) with a regression coefficient of -0.22. The regression coefficient of the labor time allocation variable in farming is negative and is in line with the expectation sign, meaning that every 1% increase in the

allocation of labor time on farming will reduce the allocation of work time to pig farming by 0.22%. Based on the research results, it is known that the more labor time allocation in farming, it will affect the labor time allocation in pig farming. The total allocation of labor time in farming is 143.64 working person's day/year and in pig farming 106.57 working person's day/year. Based on the research results, it is known that the allocation of labor time is more allocated to farming. The research of [16] where the allocation of family labor in farms other than livestock is greater than the allocation of family labor in livestock farming.

Wages in Pig Farming

The wage variable in pig farming has a significant effect on the allocation of labor time in pig farming (P < 0.1) with a regression coefficient of 2.05. The regression coefficient is positive and is in accordance with the expectation sign, meaning that every 1% increase in wages for pig farming, the farmer will increase the working time allocation for pig farming by 2.05%. Based on the research results, it is known that the more labor wages in pig farming, the more labor time allocation in pig farming. The results of this study are in accordance with research [18] that there is a significant relationship between the level of wages and the allocation of working time, when wages increase, the work allocation will also increase.

Number of pigs

The variable number of pigs has no effect on the allocation of labor time in pig farming (P > 0.1). This means that even if there is an increase in the number of pigs, it will not affect farmers in allocating working time to pig farming. The number of pig ownerships owned by pig breeders is currently 26 pigs/farmer. Based on the results of the research, the number of pig ownership in Tenga Village, Pakuure Village, and Pakuweru Village mostly raised 64 pigs and was only done by 1 person or the farmer himself. As research [1]

found that the amount of time working in a pig farming business with a total of 30 pigs ownership can be done by 1 worker.

Number of household members

The variable number of household members has no effect on the allocation of labor time in pig farming ($P > 0.1$). This means that even though there is an increase in the number of household members, it will not affect farmers in allocating working time to pig farming. Based on the results of the research, the number of family members in Tenga Village, Pakuure Village, and Pakuweru Village is explained based on the average family dependency, namely 4 people/household and only 1 person who plays a role in managing the pig livestock business so it can be said that the number of family members has no influence. to the allocation of working time in the pig farming business. This study is in accordance with the research of ^[19] that family dependents have no significant effect on household work time allocation.

CONCLUSION

The factors of allocation of labor time in farming, wages of work in pig farming, the number of livestock ownership, and the number of family members all influence the allocation of labor time in pig farming. The factors that greatly influence the allocation of labor time in pig farming are the allocation of labor time in farming and the wages of pig farming.

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