

## Labour Absorption at Various Types of Livestock Business in Banyumas Regency

(Daya Serap Tenaga Kerja pada Berbagai Jenis Usaha Peternakan di Kabupaten Banyumas)

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**ABSTRACT:** The research was aimed to (1) know the level of labour absorption at various types of livestock business, (2) compare labour absorption at various types of livestock business and (3) analyze the influence of business scale, labour productivity and economic efficiency to absorption of labour at various types of livestock business in Banyumas regency. Research was done by using survey method to farmers households. The areas of research were selected using purposive sampling based on number of livestock population in those districts. Respondents were drawn randomly by using simple random sampling method. One way ANOVA was used to test the difference of labour absorption among four types of livestock business. Meanwhile, multiple regression analysis was used to study the influence of business scale, labour productivity and economic efficiency to labour absorption. Research results showed that labour absorption on dairy cattle business was 1.23 STKSP (*man equivalent labour unit*), sheep was 1.54 STKSP, goat was 1.75 STKSP and beef cattle were 1.14 STKSP. There was a significant difference of labour absorption from four existing types of livestock business. Labour absorption was significantly influenced in positive direction by business scale and economic efficiency of business. while labour productivity has a negative significant influence on labour absorption.

**Key Words:** Labour, business, livestock

### Introduction

One of the consequences of weak economy condition in this time is the increasing number of open unemployment and semi unemployment in rural area. The increase of unemployment rate was related to decrease of labour absorption in economic sectors which is labour intensive. Real picture of economic performance is large number of people which have lost work or do not be permeated in opportunity of existing job.

Decreasing job opportunity outside agricultural sector cause the make-up of current return labour to rural. Golberg and of Robinson (1999) expressed that 70 percent of society in developing countries live in rural and get earnings from agricultural sector and other activities related to agriculture. This phenomena has caused agricultural sector which in it also the including animal husbandry become source of earnings and work opportunity of rural society.

However, problem of labour in rural area often meet difficulty because complication of it. Growth of

rural labour force which progressively mount and current return of industrial labour to rural agricultural sector do not always followed with readiness of opening field in agricultural sector. It has generated many negative effects to growth of social economic in rural region. As a result, agricultural sector always account enough burden in overcoming limitation of rural employment.

According to data of BPS of Banyumas (2006) seen that in period of last five year, there was indication of structural change in absorption of labour in Banyumas. The number of labour forces that were employed in agricultural sector in the year of 2000 equal to 66.3 percent, and slow down to become 58.7 percent in the year 2005 or experienced decreasing in amount of 7.6 percent during last five year. This fact show the existence of degradation of labour absorption in agricultural sector which generally is resulted from the narrowing of scale and change of social change in community of Banyumas.

The various livestock have developed sharply Banyumas. Majority of farmers get their farm business as primary livelihood to improve family income even though with limited farming system and business strategy. Development of livestock business directly or indirectly has brought great multiplier effect to economic status of community especially in

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promoting number of employment opportunity for members of farmers' family. Growth of various businesses of livestock is expected become locomotive on solving of problems of rural labour. Potency estimation of labour absorption at various type of livestock business will become important information in study of supply and demand elasticity of labour in animal husbandry sector. Referring to the mentioned above, it is required to conduct an immediate research concerning labour absorption in various livestock business in Banyumas.

Based on above background, some problems of work forces which related to development of livestock in Banyumas can be formulated as following

1. What is the level of labour absorption at various type of livestock business in Banyumas
2. Is there any difference of labour absorption at various type of livestock business in Banyumas
3. How influence of business scale, labour productivity, and economic efficiency to absorption of labour at various type of livestock business in Banyumas.

This research aim to (1) to know labour absorption of various type of livestock business in Banyumas, (2) comparing labour absorption at various type of livestock business in Banyumas, and (3) identifying determinant factors in improving absorption of labour at various type of livestock business in Banyumas.

## Research Methods

The research has been conducted during four months with location in Banyumas. Objects which used in this research was livestock business and farmers covering various livestock business type (beef cattle, dairy cattle, goat and sheep) in Banyumas.

Primary data was obtained from observation and direct interview to farmers and the livestock business by using prepared questionnaire. Secondary data was obtained from notes of Fishery and Livestock Office, Research and Development Office, and Statistic Office of Banyumas covering livestock population data, agriculture labour force and data of economic growth of Banyumas.

Research was executed by using survey method to farmers household. Regional samples were taken by using purposive sampling method that is district regions with large population of farmers in beef cattle, dairy cattle, goat, and sheep in Banyumas.

From each selected districts there was 20 percent of farmers taken as sample randomly (*sampling random simple*).

To know labour absorption at various type of livestock business used calculation quantity to employed labours in each livestock business. The calculation use basis of man equivalent labour unit (STKSP) considering that man with age of 12-65 years old equivalent to 1.00 unit, woman with age of 12-65 years old equivalent to 0.75 unit and man/women with age of 7-12 year old assumed 0.50 unit (BPLPP, 1987). To test the existence of difference of labour absorption between four livestock business used One Way Analysis of Variance (One Way ANOVA). Sugiyono (2002) expressed that to test comparability hypothesis more than 2 groups of sample in economics business research used One Way Analysis of Variance (One Way ANOVA) which was initiated using homogeneity test. Through homogeneity test, data expressed homogeneous if biggest variance divided by smallest variance  $< F$  tables 0.05.

To study influence of independent variables (business scale, labour productivity and economic efficiency) to dependent variable (labour absorption) which expressed in set of STKSP used by analysis of multiple regression with mathematical model referred to Seyoum *et al.* (1998) with formula of  $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + e$ .

$Y$  = labour absorption (STKSP)

$a$  = constant

$b_{1-3}$  = coefficient of regression

$X_1$  = business scale (animal unit)

$X_2$  = labour productivity (Rp/work hours)

$X_3$  = economic efficiency

$e$  = error.

## Results and Discussion

Increased, labour absorption in agriculture has been widely held to be the key to solving unemployment problems in Indonesia. To know labour absorption at various type of livestock business used approach of number of employed labour in each livestock business. Calculating the number/quantity of absorbed labour used basis of man equivalent labour (STKSP) that consider man in 12-65 years old equivalent to 1.00 unit, woman within 12-65 years old equivalent to 0.75 unit and man or women with age of 7-12 year old assumed by 0.50 unit.

Based on result of the calculation known that labour absorption mean at dairy cattle farm equal to 1.23 STKSP, sheep equal to 1.54 STKSP, goat equal to 1.75 STKSP and beef cattle equal to 1.14 STKSP. Data homogeneity test was done before test the difference of labour absorption at four types of livestock business. Condition of data expressed homogeneous if biggest variance divided by smallest variance  $< F$  tables 0.05. From four observed different types of livestock business, sheep farming having the highest data of variance that was 0.2934, while beef cattle farming have the lowest variance that was 0.1412. Results of  $F$  test showed an output equal to 2.0778, and it is smaller than  $F$  table 0.05 equal to 2,174 ( $P > 0.05$ ). The mentioned gives the meaning that obtained data from four types of livestock business was homogeneous, so that can be continued to analyze the difference of labour absorption of four types of livestock business.

The difference test of labour absorption among four type of livestock businesses used One Way Analysis of Variance (One Way ANOVA) and obtained result of  $F$  test equal to 11.7446 higher than  $F$  table of 0.01 equal to 4.085 ( $P < 0.01$ ). This situation picturing that there was a high significant difference of labour absorption from four types of livestock business. Goat farm has the highest labour absorption which was equal to 1.75 STKSP. This can be explained that goat livestock in Banyumas mostly managed with economic basis in large number of ownerships so that involving numbers of farmers households. Involvement of the family members was distributed in several activity started from cleaning of cattle housing, feeding, and in marketing of livestock. To know the difference of labour absorption between different types of livestock business used  $t$  test which is shown in Table 1.

Table 1 shows that difference of livestock type (small ruminants and ruminants) cause difference of labour absorption. Type of livestock business of small ruminants is more absorb labours compared to type of ruminants. This condition is pushed by phenomenon that number of ownership of small ruminants (goat and sheep) is larger than ruminants (beef and dairy cattle). The difference of livestock business scale causes the difference involvement of labour at each type of livestock business. The need of huge capital in ruminants becomes barrier to improve

scale of ownership of beef cattle and dairy cattle. Ahmad (2000) expressed that high expense in providing investment at small scale farming is able to become barrier in labour absorption.

To know the influence of business scale, economic efficiency and labour productivity to labour absorption used multiple regression analysis. Based on the analysis obtained multiple regression equation as follows:  $Y = 0.8799 + 0.1225X_1 + 0.0776X_2 - 0.00089X_3$ . Coefficient of Determination ( $R^2$ ) equal to 55.38 percent which means that labour absorption can be explained by variation of business scale, economic efficiency and labour productivity equal to 55,38 percent, while the rest equal to 44,62 percent explained by variables which do not included in research.

To see influence of independent variables (business scale, economic efficiency and labour productivity) to labour absorption used  $F$  test, and obtained a result of calculated  $F$  equal to 22.97 bigger than  $F$  table 0.01 equal to 3.592. Labour absorption was influenced by those variables (business scale, economic efficiency, and work productivity) ( $P < 0.01$ ). The analysis of influence of each independent variable (business scale, economic efficiency and labour productivity) to labour absorption by using  $t$  test showed partially that business scale, economic efficiency and labour productivity have an effect on labour absorption.

Ohajianya (2005) stated that the major determinants of unskilled urban labour supply were urban labour wage rate, household out migration and level of education, while the three major determinants of agricultural labour supply were farm income, farm size and household size. Setting up of rural based industries and the provision of basic infrastructure and amenities in the rural areas in order to retain the rural labour supply.

Business scale has significant influence ( $P < 0.01$ ) to labour absorption with positive coefficient of regression 0.1225. This means that changes one unit in business scale will improve labour absorption equal to 0.1225 STKSP. Supriyati *et al.* (2000) expressed that dynamics absorption of labour in rural area was influenced by number of land ownership and structure of farm ownership. This statement is supported by Poggi (2007) increasing farm scale would tend to improve economic capability of business and therefore would be able to hire more labours with higher wage.

Table 1. T test of labour absorption among different types of livestock business

| No | Between Type of Livestock Business | db | Calculated T | t table |        |
|----|------------------------------------|----|--------------|---------|--------|
|    |                                    |    |              | 0,05    | 0,01   |
| 1. | Dairy cattle with sheep            | 37 | 2.0924*      | 2.0273  | 2.7132 |
| 2. | Dairy cattle with goat             | 38 | 0.7246       | 2.7178  |        |
| 3. | Dairy cattle with crosscut ox.     | 38 | 0.7244       | 2.0252  |        |
| 4. | Sheep with goat.                   | 37 | 1.3889       |         |        |
| 5. | Sheep with crosscut ox.            | 37 | 2.7043*      |         |        |
| 6. | Goat with crosscut ox.             | 38 | 5.0081**     |         |        |

\* = significant at 0.05

\*\* = highly significant at 0.01

Economic efficiency have significant influence ( $P < 0.01$ ) to labour absorption with positive coefficient of regression 0.0776. This mentioned all changes in economic efficiency one unit will improve labour absorption to 0.0776 STKSP. Soeprapto *et al.* (2000) mentioned that efficient livestock business can yield ever greater economic output. The success in improving economic output will be able to improve business diversification and extensification and finally absorb more labours.

Labour and land area the most important factor in farm productivity compare to other factors. Availability of labour with high skill is needed to improve farm productivity. Labour productivity have great influence ( $P < 0.01$ ) to labour absorption with negative coefficient 0.00089. This condition interpret that changes one unit in labour productivity will be able to reduce labour absorption to 0.00089 STKSP. Singh and Das (2000) expressed that labour productivity is correlation between output that is service and goods with input in the form of resource (non human and human resource) which is able to be utilized in production process. Productive labour can conduct an activity with minimum expense to get maximal result. Availability of productive labour in organization can reduce number of labour used in the production process. However, to find labour with quality (high labour quality) and high productivity labour is not very easy. Yang and Tisdell (1992) expressed that quality of labour in agriculture area significantly decrease because low of salary and unsuitable with market need. While Situmorang and Kalsum (2007) expressed that salary become economic resistance in improvement of work ethos and labour productivity farm. This condition cause many labours involved in farm activity although with very minimum work quality. In other statement, Rusastra and Suryadi (2004) expressed that producti-

vity and welfare of labour can be improved through implementing appropriate institutional arrangement on agricultural mechanization, agribusiness, and agroindustry development, as well as non-agricultural employments generation.

## Conclusions

Based on results of the research can be concluded that level of labour absorption at various type of livestock business in Banyumas show difference and goat farming has the highest labour absorption. Business scale and economic efficiency are positive determinant in improving labour absorption at various types of livestock while labour productivity gives negative influence to the labour absorption.

Development of small ruminants (goat and sheep) is much recommended to reduce unemployment rate in rural area and improving social and economic status of rural community. Research on labour absorption based on gender differentiation would be better done to identify the working opportunity of men and women in livestock industry.

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