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# Externality Analysis of Laying Hens on The Community in Padakkalawa Village

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**Abstract**

Carrying out a business activity in the small and large-scale chicken farming sector certainly has externalities for other people and the surrounding environment. An externality is an impact (positive or negative) on the existence of a business which is a necessity that economic actors need to know. If the impact is detrimental, then it is called a negative externality. On the other hand, if the impact is favorable, it is called a positive externality. The problem of externalities is related to the problems of justice and welfare that occur in society. People's welfare can be measured by their income. Community income is the flow of money that flows from the business world to the community in the form of wages and salaries, interest, rent, and profits. The purpose of this study was to determine the externalities of laying hens to the community in Padakkalawa Village. The research used is descriptive quantitative, namely the process of finding knowledge that uses data in the form of numbers as a tool to analyze information. The results showed that the negative externality caused by laying hens is environmental pollution, while the positive externalities caused by laying hens are absorbing labor, creating new business opportunities, and the availability of manure.

**Keywords:** externalities, chicken farms, community income

## A. Introduction

Livestock is one of the agribusiness sub-sectors that must be developed by the government to increase livestock yields optimally (Adhikari, 2019; van der Ploeg et al., 2019). The development of the livestock sub-sector can have a large positive impact on the welfare of farmers and ranchers, especially the government itself (Dizyee et al., 2017; Moerkerken et al., 2020).

The livestock sub-sector consists of several important parts that continue to be pursued in increasing livestock yields (Enahoro et al., 2019). An example of the livestock sub-sectors, namely laying hens and broilers, which are widely cultivated by companies and the general public who are interested in developing laying hens in Indonesia (Biswal et al., 2020; Bracke et al., 2019; Stojanova et al., 2016).

The emergence of the existence of broiler chicken farms is an opportunity that by opening up wide employment opportunities to help the community with the economic income that exists in the breeder itself (Abdullahi et al., 2019; Chia et al., 2019). Opening employment opportunities can make the next generation assist in every ability that is produced, both negatively and positively which is associated with cooperation and groups (Abdullahi et al., 2019) from the community in Padakkalawa Village, Pinrang Regency, South Sulawesi province, Indonesia.
External factors can be used as consideration in handling broilers which can increase people's income, especially in the field of animal husbandry.

## B. Methodology

*1.* Research Design

This research includes field research, namely research carried out in the real world (Pelto PJ, 2016). Because basically, field research is research conducted to explore data sourced from the research location or field. What are the positive and negative externalities of laying hens to the community in Padakkalawa Village, Mattiro Bulu District, Pinrang Regency.

*2. The Technique of Data Collection*

The population in this study is the community in Padakkalawa Village, Mattiro Bulu District, Pinrang Regency as many as 30 people. Samples were taken from as many as 30 people who live within a radius of 100 meters of the chicken farmer. Determination of the sample is done by purposive sampling (randomly).

*3. Research Instruments*

The data collection methods used in this research are:

a. Observation is a method of collecting data by taking or seeing directly objects related to research that can be used as data.
b. The interview is a method of collecting data by conducting direct interviews with respondents for research purposes based on structured questionnaires/questions.

*4. Research Variables and Indicators*

The variables and indicators of this study include several matters relating to the externality analysis of laying hens in the community. These variables and indicators can be seen in Table 1:

**Table 1. Research Variables and Indicators**

| No. | Variable | Sub Variable | Indicator |
|---|---|---|---|
| 1. | externalities | Positive externalities | a. Increasing people's income<br>b. Open a new business field |
| | | Negative externalities | a. Environmental pollution (odor, water).<br>b. Declining Public Health |

*5. The Technique of Data Analysis*

The data analysis technique used in this research is to use a scoring system using the Likert scale on the externalities of laying hens. Each answer is associated with a form of statement or attitude support expressed in words that are categorized as follows: (Amam et al., 2019; Rasyid et al., 2020)

Strongly agree (SA) = 4
Agree (A) = 3
Disagree (DA) = 2
Strongly Disagree (SDA) = 1

The measurement of each research sub-variable can be stated as follows:

a. Positive and Negative Externalities

Increasing people's income and opening up new business fields, laying hens based on performance by using the following basic assumptions:

Highest score = Highest score × sample × statement
= 4 × 30 × 2 = 240

Lowest score = Lowest score × sample × statement
= 1 × 30 × 2 = 60

$$\text{Class Interval} = \frac{\text{Highest number} - \text{lowest number}}{\text{Number of classes}}$$

$$= \frac{240 - 60}{4}$$

$$= 45$$

From these values, the following categories can be made:
Strongly agree = 195.3 – 240
Agree = 150.2 – 195.2
Disagree = 105.1 – 150.1
Strongly disagree = 150 – 60

Respondent's answers to the specified categories refer to the measurement of indicators.

b. Overall Externality Value

To find out the overall value of laying hens farm externalities to the community, the following grouping is used:

Maximum score = Highest Score (4) x Number of Samples (30) x Number of Statements (2+2)
= 480

Minimum score = Lowest Score (1) x Number of Samples (30) x Number of Statements (2+2)
= 120

$$\text{Class Range} = \frac{\text{The Number of Highest Grades} - \text{Number of Lowest Grades.}}{\text{Total score}}$$

$$= \frac{480-120}{4} = 90$$

With these values, the following categories can be created:
Strongly Agree = 390 – 480
Agree = 300 – 390
Disagree = 210 – 300
Disagree = 120 – 210.

## C. Result and Discussion

*1. Characteristics of Respondents*

The characteristics of the interviewees in this survey were divided into age, level of education, Type of work, and Business Development.

a) Ages

Personal factors are the most decisive factors in a person's cognition. This is because it is strongly influenced by several characteristics such as age, environmental conditions, and most important self-concept. The following table will show the characteristics of respondents by age level.

**Table 2. Characteristics of Respondents by Age of the Community**

| Age | Frequency (Person) | Percentage (%) |
|---|---|---|
| 1 - 20 years | - | - |
| 21 - 40 years | 14 | 46,67 |
| 41 - 60 years | 12 | 40,00 |
| 61 - 80 years | 4 | 13,33 |
| Total | 30 | 100,00 |

**Source: Primary Data, 2020.**

It can be seen in Table 2 that the highest percentage of the age level of respondents is the classification of respondents aged 21-40 years with a total of 14 people with a percentage of 46,67%, this condition indicates that more respondents are in the category of productive age found at the time of the interview (Ahmad & Jadoon, 2015).

b) Level of education

The level of education reflects knowledge and thinking ability (Kong, 2014; Paakkari & Paakkari, 2012). The following table will show the number of respondents with education level.

**Table 3. Characteristics of Respondents Based on the level of education of the community**

| Age | Frekuency (Person) | Persentage (%) |
|---|---|---|
| No school | 1 | 3,33 |
| Elementary School | 10 | 33,3 |
| Junior High School | 9 | 30,00 |
| Senior High School | 8 | 26,67 |
| First Graduate | 2 | 6,67 |
| Total | 30 | 100,00 |

**Source: Primary Data, 2020.**

c) Type of Work

The type of work will affect a person's level of judgment, and he will judge his views(Dusterhoff et al., 2014; Newman et al., 2014). The following will introduce the job types of interviewees in the assessment as follows:

**Table 4. Characteristics of Respondents Based on Types of Work of the Community**

| Age | Frequency (Person) | Percentage (%) |
|---|---|---|
| Student | - | - |
| Farmer | 16 | 53,33 |
| Housewife | 10 | 33,33 |
| Civil servant | 4 | 13,33 |
| Total | 30 | 100,00 |

**Source: Primary Data, 2020.**

d) Business Development

People prefer livestock and fishery businesses to other businesses. This can be seen from the following data:

**Table 5. Characteristics of Respondents Based on Community Business Development**

| Age | Frequency (Person) | Percentage (%) |
|---|---|---|
| Shrimp farmer | 4 | 13,33 |
| Cultivation of catfish | 7 | 23,33 |
| Cultivation of Tilapia | 6 | 20,00 |
| Broiler breeder | 7 | 23,33 |
| Rice factory | 3 | 10,00 |
| Building tool seller | 3 | 10,00 |
| Total | 30 | 100,00 |

**Source: Primary Data, 2020.**

*2. Externality Analysis of Laying Chicken Farms on the Community*

Externalities (positive or negative), or the impact of the existence of a business, are a necessity that economic actors need to know (Dreyer et al., 2017; Georgescu & Popescul, 2015;

Renouard & Ezvan, 2018). The problem of externalities is related to the problem of justice that occurs in society(Lowitzsch, 2019; Moeng, 2019). Thus, externalities affect the development of the economic activity of each economic actor, which in turn affects the welfare of society as a whole. Externalities for society can be in the form of benefits (benefits to society), burdens, or costs (costs on society) due to production and consumption activities (Jacobides et al., 2018; Sacchetti & Borzaga, 2021). These benefits and burdens are not only felt by people who have a direct interest in the company as owners, consumers, workers, the government, or the community. But also felt by other people who are not directly related to the activities and existence of the company. The spillover of benefits or burdens to the community with an interest in the activity is called an externality, or the impact of the existence of a production or consumption activity on the wider community that is not directly related or has an interest in the activity (Borowiak, 2019; Green & Gambhir, 2020; Mitchell & Kan, 2019; Paul, 2019; Power, 2017).

a) Positive Externalities

Positive Externalities are positive impacts on the existence of a business. Positive externalities in this study are increasing people's income and opening new business fields. An increase in income is an increase in income obtained by the local community around the farm because, with the existence of the farm, the community previously earned only from products such as gardening, farming, labor, and carpenters. But with the existence of the farm, it can meet all their needs such as basic needs and social needs where previously only a small part of the community's needs could be met. In addition, the existence of Laying Chicken Farms in Padakkalawa Village turns out to have broader prospects, for providing job opportunities and employment, laying hens farms can arouse the enthusiasm of the surrounding community for new business innovations that they had not thought about at this time. They do this to earn income. As for the new businesses that the community does with laying hens, one of which is trading from the farm's products.

It is related to Kramer & Porter (2019) who stated that The service comes to an assessed 2 million agriculturists, and early inquiries demonstrate that it has helped increment the salaries of more than 60% of them (Kramer & Porter, 2019).

**Table 6. Positive Externalities of Laying Chicken Farming on Communities**

| No | Indicator | Category | Score | Frequency (person) | Heavy | Percentage (%) |
|---|---|---|---|---|---|---|
| 1 | Increasing people's income | Very deficient | 1 | 5 | 5 | 16,67 |
| | | Devicient | 2 | 7 | 14 | 23,33 |
| | | Average | 3 | 8 | 24 | 26,67 |
| | | High | 4 | 10 | 40 | 33,33 |
| | Sub Total | | | 30 | 83 | 100,00 |
| No | Indicator | Category | Score | Frequency (person) | Heavy | Percentage (%) |
| 2 | Open a new business field | Very deficient (VD) | 1 | 3 | 3 | 10,00 |
| | | Devicient (D) | 2 | 7 | 14 | 23,33 |
| | | Average (A) | 3 | 10 | 30 | 33,33 |
| | | High (H) | 4 | 10 | 40 | 33,33 |
| | Sub Total | | | 30 | 87 | 100,00 |
| | | Total | | 60 | 170 | |

**Source: Primary Data, 2020.**

Get a clearer picture of the positive externalities of laying hens to the community, it can be seen in Figure 1.

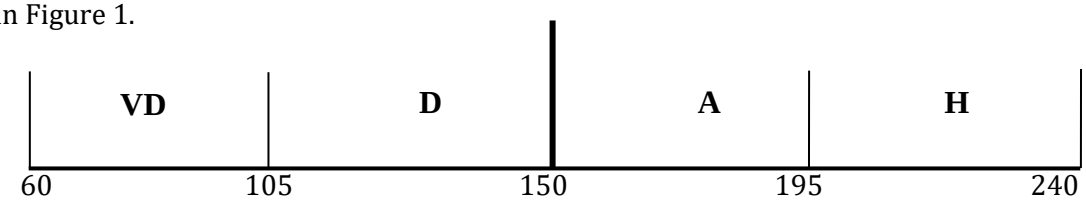


**Figure 1. Positive Externality Scale of Layer Farming on the Community**

From Figure 1. it can be explained that the positive externalities of laying hens to the community, namely increasing income and opening new business fields are in the average category (150 – 195) with a heavy of 170. This means that according to respondents' answers to the existence of this layer chicken farm, it gives a positive impact on the community in an increase in income felt by some people and opening up new business fields such as trading eggs carried out by the community around the laying hens farm area.

b) Negative Externalities

Negative externalities are negative impacts felt by the community, both directly and indirectly related to the activities and existence of the farm. The negative externalities in this study are environmental pollution and the decline in public health.

Environmental pollution cannot be eliminated, but environmental pollution can be minimized with the right actions. Because efforts to reduce pollution levels will be very beneficial for people's lives. The pollution that is often felt by the community around the Laying Chicken Farm in Padakkalawa Village is the smell of vesical waste and the large number of flies roaming people's homes. Environmental pollution produced by laying hens in the village of Padakkalawa in the form of an unpleasant odor and the number of flies that arise due to the rest of the production process causes the level of public health to decline. Public health is declining due to any negative impact that is felt daily by the people living around the farm. People often complain that there are lots of flies that enter the house and perch on food, prayer rooms, and living rooms. The unpleasant smell also often makes people lose their appetite, if this continues to be felt, it will make the level of public health decline.

**Table 7. Negative Externalities of Laying Chicken Farming on Communities**

| No | Indicator | Category | Score | Frequency (person) | Heavy | Percentage (%) |
|---|---|---|---|---|---|---|
| 1 | Environmental pollution | Not disturbed | 1 | 3 | 3 | 10,00 |
| | | Less Disturbed | 2 | 6 | 12 | 20,00 |
| | | Disturbed | 3 | 9 | 27 | 30,00 |
| | | Very Disturbed | 4 | 12 | 48 | 40,00 |
| | Sub Total | | | 30 | 90 | 100,00 |
| No | Indicator | Category | Score | Frequency (person) | Heavy | Percentage (%) |
| 2 | Declining public health | Very deficient (VD) | 1 | 14 | 14 | 46,67 |
| | | Devicient (D) | 2 | 14 | 28 | 46,67 |
| | | Average (A) | 3 | 1 | 3 | 3,33 |
| | | High (H) | 4 | 1 | 4 | 3,33 |
| | Sub Total | | | 30 | 49 | 100,00 |
| | | Total | | 60 | 139 | |

**Source: Primary Data, 2020.**

To get a clearer picture of the negative externalities of laying hens on the community, it can be seen in Figure 2.

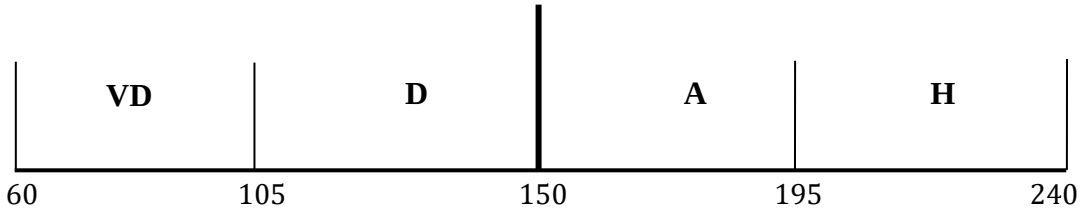


**Figure 2. Positive Externality Scale of Layer Farming on the Community**

From Figure 2. it can be explained that the negative externalities of laying hens on the community, namely environmental pollution and declining public health were in the deficient category (105 - 150) with a heavy of 139. This means that according to respondents' answers, the existence of this laying hens farm has an impact negative impacts on society are environmental pollution that occurs around the farm area and the decline in public health caused by

environmental pollution such as unpleasant odors felt by people who are close to laying hens farming areas.

c) Overall Total Externalities

Community assessments on the externalities of laying hens as a whole can be seen in Table 8.

**Table 8. Results of the Recapitulation of Externality Assessment of Layer Farming on the Community**

| Variable | Sub Variable | Heavy | **Category** |
|---|---|---|---|
| Externalities to Society | Positive Externalities | 170 | Average |
| | Negative Externalities | 139 | Deficient |
| | Total | 309 | |

**Source: Primary Data, 2020.**

Table 8. shows that the results of respondents' assessments of laying hens farm externalities to the community in Padakkalawa Village, Mattiro Bulu District, Pinrang Regency as a whole are average with a total heavy 309. The assessment includes positive externalities with indicators of increasing income and opening new business fields, with a heavy 170. And negative externalities with indicators of environmental pollution and declining public health, with heavy 139.

To get a clearer picture of the total externality of laying hens to the community can be seen in Figure 3.

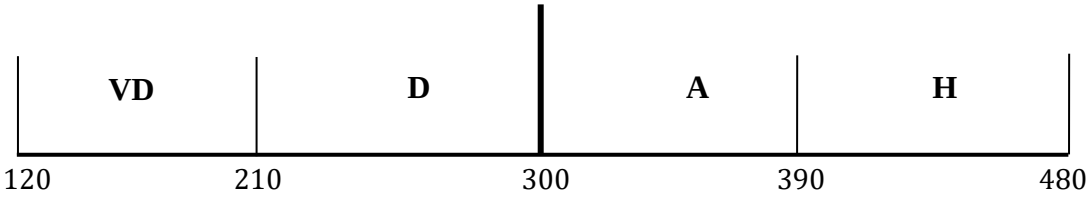


**Figure 3. Positive Externality Scale of Layer Farming on the Community**

From Figure 3. it can be explained that the externality of laying hens to the community is in the Average category (300 – 390) with a heavy 309. This means that respondents feel a lot of impact with the existence of laying hens because laying hens provide opportunities for the community to increase their daily income and open new business fields for the community around the laying hens, such as trading eggs. However, the local community also feels the negative impact, especially those near the livestock area, namely the occurrence of environmental pollution, resulting in a decline in public health. However, this can be minimized by several countermeasures carried out by farmers and the community around the livestock area in Padakkalawa Village, Mattiro Bulu District, Pinrang Regency. This is following Halawa et al (2018) who stated that the cage building must be far enough away from residential houses to avoid noise, air, and water for residents of residential houses, buildings, or other activity centers (Halawa et al., 2018).

## D. Conclusion

Based on the results and discussions that have been stated above, it can be concluded as follows: a livelihood for the surrounding population, animal protein producer, and additional income, as well as opening up business fields for the community (positive externalities). And causing pollution to the environment, be it soil, air, or water pollution (negative externality).

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