Economic behavior of vegetable farmer in Enrekang

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Abstract. This research aims to determine the economic attitudes of the domestic farmers in the Enrekang district. The research location is purposive with methodological consideration, vegetable cultivation in South Sulawesi. Respondents were taken by simple random sampling about 10% of the population of the households of vegetable farmers in Tongko village and the village of Area AllaEnrekang District. The method of research used is a survey method. The data collected in this study consists of primary data and secondary data. Moreover, previous research reports that support this research. Farmer activities (combination cassava, corn, and vegetable) require a fee of Rp 4,910,720, and the income earned amounted to Rp 13,716,773 per year. The income of farmer's household was Rp 36,608,664, with a composition of 45.92% of the outside work over 37.47% farming.

1. Introduction

Vegetables are an essential commodity in supporting national food security. This commodity has wide diversity and serves as a source of carbohydrates, proteins, vegetables, vitamins, and minerals. Vegetable production in Indonesia increased annually, and the consumption recorded at 44 kg/per capita/year. The growth rate of vegetable production in Indonesia ranges from 7.7-24.2%/year. In South Sulawesi, the average consumption of new vegetables reaches 35.43 kg/per capita/year, still far from the regular consumption of healthy expectations of 75 kg/per capita/year [1]. Vegetable production in South Sulawesi in 2012 recorded 260,995 tons, decreased 1,810 tons, or 0.89% compared with the production year 2010 that reaches 262,776 tons.

One of the centers of vegetable production in South Sulawesi is the Enrekang district. Vegetable plants in the district of Enrekang South Sulawesi, among others, as a source of income and employment for most of the family head and contribute considerable contribution in generating foreign exchange for the economy in Sulawesi South. The sub-districts in the Highlands, such as Alla, Anggeraja, and Baraka, are vegetable producing centers. The most widely cultivated vegetables are potatoes, cabbage, mustard, scallion, and chicory. The production of vegetables in Enrekang district is quite dominant; this is the image of several vegetable commodities produced by Enrekang which sent to the island of Borneo, North Sulawesi, Sulawesi Tengah, South East Sulawesi, West Sulawesi, and several District/City in South Sulawesi itself (according to the survey of current commodity matrix). There are some commodities that production is large enough, a large red chili, which is in the year 2013 with a production of about 50,849 tonnes, or about 43.58% of the total production of large red chili pepper, as well as a beans commodity where its production is about 46.49% of the total production of South Sulawesi.
Indonesia agricultural concerned with the characteristics of three crucial aspects, namely (1) the characteristics of Agricultural production Technology, (2) Characteristics of farmer households (farm Household) as an economic unit, and (3) the characteristics of agricultural products as commodities. These three characteristics refer to sustainable farming systems that can encourage the development of a people's economy [2,3]. The farmer's household aspect is essential to learn, considering that most of the agricultural products in Indonesia contributed to house farming activities. Furthermore, it said that one of the new problems to be examined from the farmer's household is the complex interaction between the production decision and the consumption decision. Furthermore, from an economic context, the purpose of the household is to achieve the maximum satisfaction/usability of the use of resources. Various economic activity in farmer households can consistently study with the assumption that such activities are conducted based on utility's maximization principles. Looking at the fact above, researchers are interested in researching the "behavioral economics households of vegetable farmers in the Enrekang district of South Sulawesi."

2. Methods

The research conducted in the Enrekang district of South Sulawesi. The research location is purposive with methodological considerations; namely, the chosen location is a region of vegetable cultivation in South Sulawesi. Respondents were taken randomly simple (simple random sampling) about 10% of the population of the households of vegetable farmers in Tongko village and the village of Area Alla Enrekang District, which was selected by consideration: a) is an area of vegetable development and has the number of households with the most vegetable farming and b) planting conditions/types of vegetables are cultivated variegated, and there are various cropping patterns.

The method of research used is a survey method that aims to get a picture representing a region correctly, and to reach the facts that occur in the field through visits and interviews live so that the image obtained As a whole about the economic behavior of vegetable farmers in Enrekang district based on the data obtained from farmers households example.

The data collected in this study consists of primary data and secondary data. Primary Data obtained through observation and direct interviews with farmer household examples in the field based on the guidance of a proposed list of questions covering the identity of farmer households, the use of production factors, the level of Production, household income sources, production costs for productive enterprises and the types of farmer's household expenses.

Secondary data is data that supports research that will complement primary data. Secondary Data collected from various departments or agencies. Also, previous research reports that support this research. The primary method used is descriptive-analytical, i.e., describing the situation or giving an overview of the relationship between the phenomena and making the implications of a problem that wants to be solved [4].

Sampling with random sampling based on sample framework from Allasubdistrict Office Enrekang District with a total of 60 households of farmer samples. The data used includes primary data and secondary data. The concept used is the income of farming, i.e., the acceptance of all commodities is reduced by all costs that issued in the farming of dry [5]. The income of a farmer's household is the sum of income from farming, outside farming, yard, and none earned income. The analysis of data is descriptively qualitative using single frequency tables, two-way cross-tabulation to look at the economic behavior of vegetable farmer households (behavior of production, income, consumption, and investment).

3. Results and discussion

3.1. Characteristics of the farmer's household

The condition of the human resources of the farm from the side of the age (only 5% are less than 40 years old) and the level of education (about 46%, and only graduated from primary school). Dryland conditions cause the younger generation to choose to work non-agricultural.
Table 1. Characteristics of farmer households.

| Description         | Number of farmers | %  |
|---------------------|-------------------|----|
| Age (years old)     |                   |    |
| 30 – 39             | 3                 | 5.00 |
| 40 – 49             | 11                | 18.33 |
| 50 – 59             | 26                | 43.33 |
| 60 – 69             | 16                | 26.67 |
| >70                 | 4                 | 6.67 |
| Total               | 60                | 100  |
| Length of Formal education |             |    |
| 0                   | 6                 | 10.00 |
| 1 – 6               | 40                | 66.67 |
| 7 – 9               | 8                 | 13.33 |
| 10 – 12             | 6                 | 10.00 |
| Total               | 60                | 100  |
| land (ha)           |                   |    |
| <0.33               | 20                | 33.33 |
| 0.34 – 0.66         | 16                | 26.67 |
| 0.67 – 1            | 12                | 20.00 |
| >1                  | 12                | 20.00 |
| Total               | 60                | 100  |

Source: Primary data processed (2016)

Based on table 1, it is 33.33% with an area of fewer than 0.33 hectares, and the rest is above 0.33 ha to more than 1 ha. The majority of farmers focus on working on food crops (maize and cassava) and vegetables (mustard greens, carrots, beans, onions, tomatoes, cabbage, etc.) on one land, while other lands are for annual crops because of the high slope.

3.2. Cost and income of farming

Farmers strive to maximize their land use by combining food and vegetable crops. Without special care, cassava plants accounted for Rp 2,824,333 per year. Corn plants accounted for 31.60% of farming income. Diverse commodity vegetables cultivated farmers. Although many require labor, the high value of vegetable selling becomes a proven income focus that contributes about 53.24% of total farmer's acceptance. The highest farming cost for the workforce reaches 44.87%. Farmers use outside labor because many household members are working out of farming. The high cost of fertilizer because farmers still use chemical fertilizers. Changes in agricultural production methods suppress nature and suppress native habitats [6]. Farmers become intensive in fertilizer use and crop protection. However, farmers also strive to reduce the cost of fertilizer using manure.

Table 2. Costs and farming revenues.

| Description     | Rp        | %  |
|-----------------|-----------|----|
| Income          |           |    |
| cassava         | 2,824,333 | 15.16 |
| corn            | 5,886,492 | 31.60 |
| vegetables      | 9,916,668 | 53.24 |
| total           | 18,627,493| 100.00 |
| Seed            | 861,938   | 17.55 |
| Labor           | 2,203,588 | 44.87 |
| Cost            |           |    |
| Fertilizer      | 1,518,729 | 30.93 |
| Etc             | 326,465   | 6.65 |
| Total           | 4,910,720 | 100.00 |
| revenue         | 13,716,773|      |

Source: Primary data processed (2016)
3.3. Farmer's household consumption and investment

Sources of income from farmers' households are from vegetable farming, outside farming work, income from the yard, and non-earned income. Efforts to increase income by utilizing the plots of land that can contribute to the income of Rp 758,166 per year with the composition of clove plants (47.15%), bananas (18.84%), corn (1.36%) and others (32.64%). Non-work income or non-earned income (NEI) of Rp 5,337,200 came from remittances (90.68%), assistance (4.07%), and others (5.25%). Farmers have combined a variety of food commodities, vegetables, and others seen from the coefficient of farming variation 3.25. However, the courage of farmers to take risks has not been followed by strategy and risk management, so that the farm income is low (37.47%). Off-farm work is continuous throughout the year and is expected to be the primary source of income to meet daily needs. The low coefficient of variation (1.25) is in line with research by Poon, K et al. [7] that farmers are more careful in choosing and managing their off-farm work.

| Source of income          | Average   | %     | Koeficientvarians |
|---------------------------|-----------|-------|-------------------|
| Farming                   | 13,716,773| 37.47 | 1.54              |
| Outside farming           | 16,809,167| 45.92 | 1.25              |
| House yard                | 745,525   | 2.04  | 3.42              |
| Non earned income         | 5,337,200 | 14.58 | 1.96              |
| Total                     | 36,608,664| 100.00| 0.85              |

Source: Primary data processed (2016)

3.4. Consumption and investment of farmers' households

Income from various sources is used by farm households to make ends meet. Household consumption is calculated based on the amount of money actually spent to obtain goods and services.

| Description | Rupiah   | Percentage (%) |
|-------------|----------|----------------|
| Consumption |          |                |
| Food        | 9,124,500| 36.42          |
| Non-food    | 15,929,726| 63.58         |
| Total       | 25,054,226| 100.00        |
| Investment  |          |                |
| land        | 4,100,000 | 17.96         |
| Alsintan    | 296,667   | 1.30           |
| livestock   | 6,591,105 | 28.87         |
| non-farming | 283,333   | 1.24           |
| work        | 11,554,439| 50.62         |
| Total       | 22,825,544| 100.00        |

Table 4 shows that non-food consumption is higher than food consumption. Agricultural products from farming land or yard that consumed itself reached Rp 1,419,730 or 15.56% of food consumption. The most significant non-food expenditure is for community life (31.04%). High consumption of farmers' households for education (15.04%) and health (9.73%) showed an awareness of farmers to prepare a healthy and educated generation. These results are in line with expectations. Mathenge, MWK [8] that excess income needs to invest in long-term activities in the form of priorities on education and health. In addition to consumption, farmers also make investments in various forms, the increase in revenues used for investing in agriculture. Raising livestock and buying land is a priority for farmers with the reason for faster value-added and livestock impurities can be used as fertilizer.
Instead, livestock feed needs partially obtained from the grass that also serves as a terrace reinforcing plants.

Although the income from farming is not dominant, farmers still have the farming to be established as their proven future investment aimed at farming. They are also concerned with the sustainability of long-term land through annual crop investments in high-slope land. The results of this study answered the research concern Mathenge, MWK [8] that income from outside farming is used by farmers to invest in business expansion off-farm because it is more profitable than agriculture.

4. Conclusions

Farmer activities (combination cassava, corn, and vegetable) require a fee of Rp 4,910,720 and the income obtained amounted to Rp 13,716,773 per year. The household income of farmers amounted to Rp 36,608,664 with a composition of 45.92% of the outside work exceeds the farming 37.47%. Excess income is prioritized for investment in agriculture, namely buying land and livestock. Food needs that filled the land itself amounted to 15.55%. The amount of non-food consumption especially for the improvement of quality households with education and health

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