

Research Article

Poverty Level of Coffee Farmers in Bengkulu Province Based on Local Coffee Farming Income

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This research aims to analyze the income of coffee farmers in Bengkulu province based on the poverty level as per Sajogyo's 1996 theory, in the form of the "rice exchange rate", and analyze the causal factors. Primary data was obtained from 326 farmers, interviewed using a purposive questionnaire. To identify factors causing poverty, it was analyzed using a logit function approach. As many as 19.33% of farmers are in the poor category, 21.78% are in a very poor condition, and 40.49% are in the poorest condition. Land ownership status and education are the keys for farmers to be able to have a decent life and socialize in society, this goes back to the role of the government.

Keywords: income, coffee farmers, poverty, role of government

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1. Introduction

Indonesia, which is ranked fourth in the world's coffee producers, is an important coffee producer in the world with an average production of 613,874.6 tons per year or contributing 7.22% of world coffee production [1]. Growth in Indonesian coffee production during 1990–2015 it increased by 2.11% per year supported by an increase in production area wide 0.63% compared to the same period [2]. The crisis and drastic decline in global coffee has an impact on domestic Indonesian coffee prices [3]. Development of the agricultural sector in general, especially coffee, is considered to be right on target if existing policies are ultimately able to place this commodity as the main driving force (improvement) of a rural economy that is highly competitive, just and sustainable [4].

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National strategic sector economic policy which focuses on improving the community's economy, especially farmers, through increasing production, diversification, prices, imports and distribution, with the aim of supporting national independence. Agricultural development is a dynamic process that has an impact on changes in the social and economic structure of society, especially in rural areas. The most important change is an increase in farmers' income and welfare. The plantation sector, especially coffee commodities in Bengkulu Province, has an important role in various aspects of people's lives, both in the fields of agricultural product trade, processing industry and tourism. Basically, this sector is required to continue to play a direct role in the national economy through the formation of Gross Domestic Product (GDP), earning foreign exchange, providing industrial raw materials, providing employment opportunities and increasing people's income as an effort to eradicate poverty [5].

As a developing country, poverty has become a major problem in the implementation of development in Indonesia, and has even become an issue and concern of nations in the world. The Sustainable Development Goals (SDGs) are a sustainable development program that is expected to be achieved by 2030, while the first goal of this program is to end poverty in all its forms everywhere. This goal is a development theme, and the main, sustainable agenda that underlies various other development goals such as infrastructure, tourism, food and energy and other developments. Poverty is a very crucial social problem and has a broad impact on various aspects of social, national and state life, such as the emergence of an unqualified generation with low competitiveness, increasing crime, low levels of health which give rise to various diseases. Including poor nutrition and even stunting.

The problem of poverty is certainly not something new in Indonesia, especially for farmers, various policies from both the central and regional governments aim to alleviate poverty. However, the reality shows that Indonesia has not been able to escape the shackles of poverty experienced by most people, especially in rural areas. Therefore, the government continues to strive to reduce the poverty rate by continuing to implement poverty alleviation programs that are felt to be effective and on target, as well as evaluating these programs to make them better and provide the expected results.

In general, basically every society wants a decent standard of living, both financially, socially and culturally as recognition in society. However, various factors, both internal and external, cause poverty for the majority of people, especially from farming families, especially coffee farmers in Bengkulu who are still far from living in decent living conditions or are still below the poverty line. These factors are usually also influenced by

regional conditions. Based on this background, to explore the various factors that cause poverty which are the root of the problems experienced, especially by coffee farmers in Bengkulu. So this research aims to analyze the poverty level of coffee farmers in Bengkulu province based on farming income and analyze the factors that cause poverty.

2. Methods

The research was carried out from October 2022 to April 2023 in two coffee producing districts in Bengkulu province, namely Kepahiang district and Rejang Lebong district which were determined purposively [6]. The samples in this research were productive coffee farmers, in other words coffee plantations in producing condition. The sample was selected or obtained using the Multi-stage sampling method with the consideration of (1) there is a very large population (2) the population is spread over a large area. A total of 326 farmers from a population of 2176 farmers were sampled, who were interviewed using a questionnaire that explored data from the previous year's harvest season, namely the 2021 and 2022 harvest seasons, using the equation Cochran 1977 in Wambua et al. [7]:

$$n_0 = \frac{Z^2 pq}{e^2} \quad (1)$$

Where n_0 is the required sample size, Z is the t value at the 95% confidence level of the normal table (1.96), p is probability that the respondent has a measurable characteristic, q is (1-p) improbability of respondents who do not have a measurable characteristic, and e is the 5% significance level. Assuming the possibility that 50% of respondents have measurable characteristics, the sample size can be calculated as follows:

$$n_0 = \frac{(1.96)^2(0.5)(0.5)}{(0.05)^2} = 384 \quad (2)$$

$$n = \frac{384}{1 + \left(\frac{384-1}{2176}\right)} = 326 \text{ farmers} \quad (3)$$

Income Analysis, pRevenue is the result of reducing receipts for costs incurred. Income in farming is the product of the amount of production and the price. Costs are grouped into fixed costs and variable costs, while farming income from each farming pattern carried out Tenriawaru is based on the following formula [8]:

$$\pi = TR - TC \tag{4}$$

Where: π = farm income

TR = total revenue (total revenue)

TC = total expenses (total cost)

To see the poverty level of coffee farmers in Bengkulu province, it was assessed using the standard poverty line [9]. The poverty line is expressed in the form of “rice exchange rate” (kg/person/year) by region and between periods. Rice as a staple food and is one of the important agricultural products in Indonesia [10]. In this research, coffee farmers are defined as farmers who occupy rural areas in Bengkulu province. Based on poverty classification, poverty is divided into three categories: (1) poor household expenditure below 320 kg/person/year; (2) very poor who experience food shortages below the rice exchange rate of 240 kg/person/year; (3) the poorest group whose expenditure is below 180 kg/person/year.

To determine the factors causing poverty experienced by coffee farmers in the research area, use the logit model [11]:

$$Z_i = \log \frac{P_i}{1 - P_i} = a \beta X_i + \upsilon_i \tag{5}$$

TABLE 1: Logic function variables (model probability).

| Variable Group | Symbol | Variable Indicator Group |
|----------------------------|----------|---------------------------------------|
| Poverty | Y^* | |
| Characteristics of Farmers | X_1 | Land area |
| | X_2 | Farmer age |
| | X_3 | Farmer education |
| | X_4 | Experience in coffee farming |
| | X_5 | Opportunity to work in other sectors |
| | X_6 | Number of children in dependents |
| External factors | X_7 | Institutional (Organization) |
| | X_8 | Government Assistance |
| | X_9 | Access to credit (capital assistance) |
| | X_{10} | Technology |

3. Results and Discussion

The research results show that the average land area owned by coffee farmers in the research area is 1.39 hectares, with an average production of 1070.5 kilograms or 1.07 tons per season per year in the form of dry coffee beans, with an average price of Rp. 22,800/kg. The research results show that the average income earned by coffee farmers in the research area is Rp. 24,388,800,- per harvest season, with the total costs incurred including fixed costs and variable costs which are categorized into cash costs and non-cash costs, which include labor costs, fertilizer and pesticide purchases, transportation costs, and land rental, in In this case, land rental uses the system applied in the research area, namely 3 to 1 (3 parts for the cultivator and 1 part for the land owner) from the production results obtained. Apart from that, this research also calculates the depreciation costs for equipment used in farming, which is calculated as non-cash fixed costs, as well as agricultural income tax based on Minister of Finance Regulation number 64. PMK 03/2022 concerning VAT Collection on the delivery of certain agricultural products from Farmer Groups (PKP) to industry is not collected from PKP which is subject to a rate of 1.1 percent, but in reality these costs are not borne by farmers.

The results show that the total costs incurred by coffee farmers in Bengkulu province during 1 harvest season or one year of production is IDR. 11,616,500, consisting of cash costs of Rp. 3,846,850,- are direct costs incurred by farmers for needs during the production process per season per year, while non-cash costs are Rp. 7,769,660 per season per year, these costs are in principle not borne by the farmers because these costs are intended for the coffee farmers themselves. The calculation results show that the average income earned by farmers in one harvest season is IDR. 12,772,300,- on net income with the record of existing farmers as cultivators, while gross income is Rp. 20,541,950,- provided that coffee farmers are farmer owners, as explained in table 2:

TABLE 2: Average condition of coffee plantation businesses in Bengkulu Province.

| Land area (ha) | Production (kg/season) | Price (IDR/kg) | Reception (IDR) | Cost (IDR) | | Income (IDR) | |
|-------------------|---------------------------|-------------------|--------------------|------------|-----------|--------------|------------|
| | | | | Cash | No Cash | Net | Gross |
| 1.39 | 1070.55 | 22.84 | 24.388.800 | 3.846.850 | 7.769.660 | 12.772.290 | 20.541.950 |

Source: Primary data processed in 2023

The research results found that the majority of coffee farmers consumed local premium and non-local premium rice which came from local rice traders, at a price of Rp.

180,000 per can of rice equivalent to 15 kilograms at a price of Rp. 12,000,- per kilogram. The results of the analysis of determining the level of poverty that occurs among coffee farmers in Bengkulu province are explained in table 2:

TABLE 3: Poverty level of coffee farmers based on income.

| Category (IDR) | Cultivator (tenant farmers) | | Owner Farmers | | Information |
|---------------------------|-----------------------------|------------|---------------|------------|-------------|
| | Amount | Percentage | Amount | Percentage | |
| >3.840.000 | 60 | 18.4 | 176 | 53.99 | Prosperous |
| >2.880.000- <3.840.000 | 63 | 19.33 | 57 | 17.48 | Poor |
| >2.160.000- <2.880.000 | 71 | 21.78 | 71 | 71.78 | Poor one |
| < 2.160.000 | 132 | 40.49 | 22 | 6.75 | Poorest |
| Total | 326 | 100 | 326 | 100 | |

Source: Primary data processed in 2023

Table 3 shows that if there are less than 20 percent of farmers as cultivators, namely 18.40 percent of coffee farmers in Bengkulu province are free from poverty or can be said to be prosperous, the remaining 81.60 percent of coffee farmers are in the poor category with the level of poverty experienced. This is in line with Suttie [12] which states that taking into account various aspects of poverty, for example access to education and essential services, poverty in rural areas is getting worse: an estimated 83.5 percent. However, if farmers are owners, then more than 53 percent of farmers are free from poverty, this is in accordance with 2020 BPS Indonesia data which states that poor households who work in the agricultural sector contribute 46.30 percent. According to the World Bank 2016 in Eyasu [13] The poorest 40 percent of people tend to live more in rural areas and are involved in the agricultural sector.

Based on the results of the analysis, there are several factors that cause poverty among coffee farmers in Bengkulu province, both based on internal and external factors that exist among farmers, explained in table 4:

The analysis results show the land area (X_1), education (X_3), number of children who are dependent on the family (X_6), institutional (X_7) has a significant influence on the occurrence of poverty due to the low income of coffee farmers in Bengkulu province, this is in line with research Kumaladevi and Sunaryanto [14] which states that the land area variable partially has a positive and significant effect on the income of coffee farmers, this is also in line with research Manjunatha et al. [15] in India which states that farmers with land ownership have the maximum level of profit efficiency in running their farming business. The maximum profit efficiency level of a farming business shows that

TABLE 4: Logit analysis results (probability model).

| Variable | β | Sig. |
|---|---------|-------|
| Land Area (ha) | 0,019 | 0,084 |
| Farmer's age (years) | -0,010 | 0,686 |
| Farmer education (year) | 0,135 | 0,026 |
| Coffee farming experience (years) | 0,016 | 0,514 |
| Opportunities to work in other sectors | 0,319 | 0,331 |
| Number of dependent children (people) | -1.168 | 0,000 |
| Institutional (farmer organization/group) | 1.183 | 0,032 |
| Government Assistance | -0,540 | 0,162 |
| Access to credit (Capital Loans) | -0,633 | 0,195 |
| Technology | 0,663 | 0,107 |
| Constant | -0,801 | 0,556 |

Note: *Significant at $\alpha=5\%$

farmers can maximize profits due to optimal use of inputs. According to Tran et al. in his research on farmers in Thailand and Vietnam shows that education has a significant and positive effect on farmers' income in these countries [16]. This is because education can increase farmers' knowledge in using agricultural inputs, and has the potential to be a solution in alleviating poverty. This is also in line with research Hartini [17] who also found that the number of family dependents had a significant negative effect on the income of coffee farmers. This is in line with research Safei et al. [18] who found that the existence of institutions such as Gapoktan for farmers had a positive impact on improving the economy of its members. In this study, almost all the farmer respondents took part in institutional activities either as administrators or members, namely 263 respondents with a percentage of 80.67 percent. Meanwhile, age (X_2), experience (X_4), opportunities to work in other sectors (X_5), government assistance (X_8), access to credit (X_9), and technology (X_{10}) has no effect on the occurrence of poverty among coffee farmers in Bengkulu province.

4. Conclusion

When farmers were smallholders (gurem) there were 81.60 percent of farmers living below the poverty line with an average income of Rp. 12,772,300,- per season per year, whereas when farmers were landowners there was a reduction in the poverty rate to 46.01 percent with an average farmer income of Rp. 20,541,950,- per season per year.

Land ownership is very crucial for farmers as a source of income, for this reason the government must be able to guarantee land ownership and good education for farmers so that farmers have the ability to socialize and have a decent life.

References

- [1] International Coffee Organization. International Coffee Agreement 2007. 2007;(September):43. Available from: <http://dev.ico.org/documents/ica2007e.pdf>
- [2] Rosiana N, Nurmalina R, Winandi R, Rifin A. Dynamics of Indonesian robusta coffee competition among major competitor countries. *Journal of Industrial and Beverage Crops*. 2018;5(1):1–10.
- [3] Fitriani F, Arifin B, Ismono RH. Indonesian coffee exports and its relation to global market integration. *Journal of Socioeconomics and Development*. 2021;4(1):120–33.
- [4] Ministry of Communication and Informatics. Center for Research and Development of Informatics and Information and Public Communication Applications, Human Resources Research and Development Agency, Ministry of Communication and Informatics. 2019. *Development of the Digital Economy in Indonesia (Strategies and Potential Sectors)*.
- [5] Indonesian Banking Development Institute and Bank Indonesia. Jakarta: Indonesian Banking Development Institute, 2015. 2021. *Business Profile of Micro, Small and Medium Enterprises (MSMEs)*.
- [6] Directorate General of Plantations. Central Statistics Agency. 2021. *Indonesian Coffee Statistics 2020*. Available from: <https://www.bps.go.id/publication/2021/11/30/b1b6cf2a6aad1ee2d8a4c656/statistik-kopi-indonesia-2020.html>
- [7] Wambua DM, Gichimu BM, Ndirangu SN. Smallholder coffee productivity as affected by socioeconomic factors and technology adoption. *International Journal of Agronomy*. 2021;2021:1–8.
- [8] Tenriawaru AN, Summase I, Rukka RM, Viantika NM, Arsyad M, Amiruddin A, et al. Coffee agribusiness and income farmers. In: *IOP Conference Series: Earth and Environmental Science*. IOP Publishing; 2020. p. 12023.
- [9] Sajogyo P. *Poverty line and minimum food requirements*. Yogyakarta: Aditya Media; 1996.
- [10] Panuju DR, Mizuno K, Trisasongko BH. The dynamics of rice production in Indonesia 1961–2009. *Journal of the Saudi Society of Agricultural Sciences*. 2013;12(1):27–37.

- [11] Gujarati DN, Porter DC. Basic econometrics. McGraw-hill; 2009.
- [12] Suttie D. Overview: Rural poverty in developing countries: Issues, policies and challenges. *Journal of Agribusiness in Developing and Emerging Economies*. 2019;5(2):94–101.
- [13] Eyasu AM. Determinants of poverty in rural households: Evidence from North-Western Ethiopia. *Cogent food & agriculture*. 2020;6(1):1823652.
- [14] Kumaladevi MA, Sunaryanto LT. Pengaruh karakteristik sosial ekonomi terhadap pendapatan petani kopi di Desa Bageng Kecamatan Gembong Kabupaten Pati. *AGRINESIA: Jurnal Ilmiah Agribisnis*. 2019;4(1):56–64.
- [15] Manjunatha AV, Anik AR, Speelman S, Nuppenau EA. Impact of land fragmentation, farm size, land ownership and crop diversity on profit and efficiency of irrigated farms in India. *Land use policy*. 2013;31:397–405.
- [16] Tran HTM, Pham TDN, Nguyen TT. Education and agricultural household income: Comparative evidence from Vietnam and Thailand. *World Development Perspectives*. 2023;29:100489.
- [17] Hartini I. Pengaruh Karakteristik Sosial Ekonomi Terhadap Pendapatan Petani Kopi Di Desa Gunung Raya Kecamatan Tanjung Sakti Pumu Kabupaten Lahat. *Jurnal Ilmu Pertanian Kelingi*. 2022;2(1):122–9.
- [18] Safe'i R, Febryano IG, Aminah LN. Pengaruh keberadaan Gapoktan terhadap pendapatan petani dan perubahan tutupan lahan di Hutan Kemasyarakatan. *Sosiohumaniora*. 2018;20(2):109–14.