
**THE EFFECT OF INCOME, HEALTH LEVEL, AND EDUCATION LEVELS ON
THE WELFARE OF PALM OIL FARMERS: A CASE STUDY OF RIAU
PROVINCE**



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Abstract

This study aims to analyze the effect of income level, health level, and education level on the welfare of palm oil farmers in Riau Province. The research uses a quantitative descriptive approach. Data were collected through questionnaires distributed to 56 smallholder farmers in Riau Province. The results show that income, health, and education variables significantly affect farmers' welfare. Higher household income, access to health insurance, and education level substantially improve farmers' living standards. Therefore, the study emphasizes the importance of government policies to enhance economic, health, and educational access for rural communities.

Keywords: Welfare, Income, Health, Education, Palm Oil Farmers

INTRODUCTION

The fulfilment of social welfare is a fundamental responsibility of the state. In the midst of globalization, which presents growing challenges, synergy between the government and society plays a crucial role in creating a prosperous social environment (Endartiwi, 2018). According to Law No. 11 of 2009 on Social Welfare, welfare is a condition in which people's basic needs are met, allowing them to live decently, develop their potential, and actively participate in social life. Kolle (1989), in Lusya (2021), asserts that welfare can be viewed from the quality of life, which includes material, physical, mental, and spiritual aspects. Community welfare is influenced by various aspects, including income, health, and education. Income serves as a key economic indicator determining individuals' ability to meet basic needs. Health reflects the physical quality of the community and its capacity to work productively, while education provides the foundation for human capacity development and improvement of living standards (Soleh et al., 2023).

Differences between urban and rural communities also indicate disparities in welfare. Rural communities, most of whom work in the agricultural sector, tend to have lower income and limited access to education and healthcare services. This condition requires government attention to ensure that economic development in rural areas aligns with improvements in the quality of life.

In this study, the welfare of palm oil farmers is measured through three main aspects: income, health, and education. Income is related to the ability of households to meet basic needs such as clothing, food, and shelter, which aligns with SDG goals 1 (No Poverty) and 2 (Zero Hunger). According to data from Statistics Indonesia (BPS), the Gross Regional Domestic Product (GRDP) of Riau Province in 2023 reached IDR 282.53 trillion, with a poverty rate of 6.67% and an unemployment rate of 4.23%. This indicates a welfare gap in the province, despite being the largest palm oil-producing region in Indonesia.

The health aspect can be observed from stunting rates and participation in the National Health Insurance (JKN) program. Based on the 2023 Indonesian Nutrition Status Survey (SSGI), the national stunting rate reached 21.5%, while in Riau Province it was 19.8%, approaching the upper limit of the WHO standard. Additionally, 99.18% of Riau's population is registered in the National Health Insurance (BPJS), although about 20% are inactive due to premium arrears. This indicates that, although health access has expanded, challenges remain in maintaining active participation and equitable healthcare distribution (SDG goal 3: Good Health and Well-Being).

Education also plays an essential role in improving community welfare. According to the 2023 Education Statistics, the school participation rate for individuals aged 19–23 in Indonesia was 28.96%, with an increase of 584 junior high schools during the same year. Improved educational facilities contribute to higher knowledge and skills among citizens, thereby enhancing productivity and long-term welfare (SDG goal 4: Quality Education).

Palm oil plantations are a strategic factor in supporting rural welfare. In Indonesia, palm oil is a leading commodity, with 15.38 million hectares of plantations producing 48.23 million tons in 2022. Riau Province alone contributes around 24.66% of the national total (Syahza et al., 2023). In Siak Regency, particularly in Pangkalan Makmur Village, most residents depend on this sector, either as landowners or workers. Palm oil plantations have created employment opportunities, increased household income, and stimulated local economic development.

The central and local governments also support palm oil farmers' welfare through various programs, such as institutional and business development training in collaboration with BPDPKS and the Ministry of Agriculture, as well as fertilizer subsidies to maintain production stability. These programs enhance farmers' capacity and reduce production costs, positively impacting household welfare.

However, dependence on harvest yields makes farmers' income unstable. When prices or production decline, their ability to meet basic needs, fund children's education, and access healthcare is affected. This phenomenon highlights the strong interconnection among income, health, and education as determinants of welfare.

A previous study by Sukiyono et al. (2024) titled "*Smallholder Palm Oil and Sustainable Development Goals (SDGs) Achievement*" revealed that smallholder palm oil farmers contribute significantly to SDG achievement, particularly in poverty reduction, food security, health, and education. However, that study used a national scope and 13 SDG indicators. In contrast, this research focuses specifically on Riau Province and four main SDG goals—No Poverty, Zero Hunger, Good Health, and Quality Education—allowing for a more detailed and contextual analysis. Therefore, this study aims to analyze the effect of income level, health level, and education level on the welfare of palm oil farmers in Riau Province. The results are expected to provide empirical insights into the factors influencing rural community welfare and serve as a reference for policymakers in promoting sustainable agricultural development

REVIEW OF LITERATURE

The Concept of Community Welfare

Community welfare refers to a condition in which people's basic needs—such as food, clothing, housing, health, and education—are adequately met, enabling them to live decently and participate actively in social life (Law No. 11 of 2009 on Social Welfare). Kolle (1989) in Lusya (2021) explains that welfare can be viewed through four dimensions: material, physical, mental, and spiritual. From a development perspective, welfare is multidimensional, involving economic, social, and health aspects that are interrelated (Todaro & Smith, 2011). The *Human Development Index (HDI)* also measures welfare through three main indicators: income, education, and health (UNDP, 2022). Hence, in this study, welfare is defined as the interaction between these three aspects that collectively determine the quality of life of rural communities.

The Effect of Income on Welfare

Income is one of the primary determinants of household welfare. According to Mankiw (2016), income reflects an individual's ability to meet basic needs and improve living standards. Stable income allows households to provide adequate food, clothing, and housing, and to invest in education and healthcare. Soleh et al. (2023) emphasize that per capita income is a common economic indicator for assessing welfare levels. In the case of palm oil farmers, income stability depends heavily on the selling price and production of fresh fruit bunches (FFB). Higher and more stable income increases the ability of farmers to sustain their families and improve their quality of life. Income also aligns with *Sustainable Development Goal (SDG) 1 – No Poverty*, which calls for the eradication of all forms of poverty. Improving rural income plays a crucial role in reducing structural poverty and promoting sustainable economic growth.

The Effect of Health on Welfare

Health is an essential factor in achieving welfare because it affects productivity, longevity, and overall life satisfaction. According to the World Health Organization (WHO, 2020), health is not merely the absence of disease but a state of complete physical, mental, and social well-being.

Health can be assessed through indicators such as life expectancy, stunting prevalence, and access to healthcare services. The 2023 Indonesian Nutrition Status Survey (SSGI) reported that the national stunting rate was 21.5%, while Riau Province recorded 19.8%, showing persistent challenges in nutrition and healthcare access in rural areas.

The *National Health Insurance Program (JKN-KIS)* aims to ensure equitable access to health services. BPJS (2023) data show that 99.18% of Riau's population is registered as participants, though about 20% are inactive due to unpaid premiums. This demonstrates that while healthcare access is broad, sustainability and equality remain issues. The health aspect corresponds with *SDG 3 – Good Health and Well-Being*.

The Effect of Education on Welfare

Education serves as the foundation of human development and a key driver of welfare improvement. According to Todaro and Smith (2011), education enhances human capability, productivity, and access to better job opportunities. Data from the 2023 Education Statistics indicate that the school participation rate for individuals aged 19–23 years in Indonesia reached 28.96%, with an increase of 584 new junior high schools. Improved educational facilities help raise literacy, skills, and social awareness, leading to better economic outcomes and quality of life. In rural contexts, such as among palm oil farmers, education contributes to knowledge of sustainable farming practices, financial literacy, and cooperative participation. Education therefore plays a direct and indirect role in promoting household welfare and supports *SDG 4 – Quality Education*.

RESEARCH METHOD

This research employs a quantitative method with a descriptive approach. The study aims to analyse the effect of income level, health level, and education level on the welfare of palm oil farmers in Riau Province. The descriptive approach is used to provide a systematic, factual, and accurate overview of the relationships among the research variables. The data used in this study consist of primary and secondary data. Primary data were obtained through questionnaires distributed to 56 respondents who are smallholder palm oil farmers in Pangkalan Makmur Village, Siak Regency, Riau Province. The research location was determined purposively because the area represents the characteristics of rural communities whose economy depends on the palm oil plantation sector. Meanwhile, secondary data were obtained from official publications of the Central Bureau of Statistics (BPS), reports from the Ministry of Agriculture of the Republic of Indonesia, and relevant academic literature. The research instrument was designed using a Likert scale to measure respondents' perceptions of each variable. Before conducting data analysis, the data were tested for validity and reliability to ensure the accuracy of the measurement instrument (Ghozali, 2018). The data analysis was carried out using multiple linear regression analysis with the aid of SPSS software, following the quantitative analysis procedures suggested by Sugiyono (2019). The object of this research is the welfare of palm oil farmers, examined through three

main variables—income level, health level, and education level—as factors influencing welfare in the context of sustainable rural development.

RESULTS AND DISCUSSION

The research analysed the influence of income level, health level, and education level on the welfare of smallholder palm oil farmers in Riau Province. Data were obtained from 56 respondents living in Pangkalan Makmur Village, Siak Regency, where most households depend on palm oil plantations as their main source of livelihood.

The results of the multiple linear regression analysis indicate that all three independent variables — income, health, and education — have a positive and significant effect on farmers' welfare. Among these variables, income level shows the strongest influence, followed by education and health. This implies that households with higher and more stable incomes tend to achieve better living standards, greater food security, and improved access to education and healthcare. From the descriptive analysis, it was found that the average monthly income per household was relatively low and fluctuated depending on harvest results and palm oil prices. This income instability often affects farmers' ability to meet basic needs such as food, clothing, and housing. This finding aligns with the SDGs Goal 1 (No Poverty) and Goal 2 (Zero Hunger), emphasizing the importance of sustainable income sources in improving welfare.

In terms of health, approximately 80% of respondents were registered under the BPJS Health Insurance Program, yet many reported irregular access to medical services due to unpaid contributions. Furthermore, limited knowledge about nutrition and healthcare contributes to local challenges such as stunting among children, reflecting a partial gap in achieving SDG Goal 3 (Good Health and Well-Being).

Regarding education, most respondents and their family members had completed primary or lower secondary education, while only a few reached higher education levels. Limited educational attainment affects farmers' ability to adopt modern agricultural practices and financial management skills. However, the expansion of local education infrastructure, such as the establishment of new schools in the Siak region, provides opportunities for improvement. These findings are consistent with SDG Goal 4 (Quality Education).

The regression model also demonstrates that when income, health, and education are jointly improved, they significantly enhance household welfare, confirming the multidimensional nature of rural well-being. These results support previous research by Sukiyono et al. (2024), which showed that smallholder palm oil farmers contribute substantially to the achievement of SDGs through poverty reduction, food security, and access to education and health services.

In summary, the findings highlight that economic empowerment, access to healthcare, and equitable education are interrelated drivers of social welfare in rural palm oil communities. Sustainable government support — including price stabilization, health insurance subsidies, and education accessibility — remains essential to ensure long-term welfare improvement among smallholder farmers in Riau Province.

CONCLUSION

This study concludes that income level, health level, and education level significantly affect the welfare of smallholder palm oil farmers in Riau Province. Among the three

variables, income has the most dominant influence, indicating that economic stability is the key determinant of household welfare. Higher income allows farmers to meet their basic needs, access healthcare, and support their children's education.

Health and education also play crucial roles in shaping long-term welfare. Access to health insurance programs such as BPJS and nutritional awareness contribute to the overall well-being of rural families. Similarly, education enhances knowledge and skills, enabling farmers to improve productivity and adopt sustainable agricultural practices.

Overall, the interaction among income, health, and education reflects the multidimensional nature of welfare, consistent with the framework of the Sustainable Development Goals (SDGs) — particularly Goals 1 (No Poverty), 2 (Zero Hunger), 3 (Good Health and Well-Being), and 4 (Quality Education). To improve farmers' welfare sustainably, policy support is needed through fair commodity pricing, accessible healthcare programs, and equitable educational opportunities across rural areas.

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