



## Research projects of counterparts funded at UNJA in 2021

Name	Counter-part	Title
<b>Dompok MT Napitupulu, Mirawati Yanita, Karina Rahma</b>	<b>C06</b>	Independence Smallholder Oil Palm Replanting: An Analysis of Income Inequality

### Background and Objectives

Oil palm plantation has multiplied since 2000 until 2021 (6.83 % / year). this has resulted in this commodity becoming a significant source of income for several communities in rural areas. Oil palm plantations, either owned either by the state, large private companies or smallholders, are now widespread in Sumatra and Kalimantan, as well as in parts of the Sulawesi and Papua Islands. Oil palm plantations have developed well and have become one of the leading regional commodities, especially in Jambi Province. Therefore, it has an opportunity to become a profitable commodity. However, the acceptance of oil palm farmers depends on the costs incurred in farming, the production at each harvest and the prevailing price of fresh fruit bunches. Therefore, the replanting of oil palm is induced to improve quality and secure farmers' incomes. Replanting with high-yielding seeds, sustainable cultivation technology, and expansion of cultivated areas also contribute to increase the income of oil palm farmers. Ngadi (2019) found that the number of Household working members and the land area significantly affect the income of oil palm farmer households. Oil palm replanting was conducted in Pelepat Sub-district, specifically in Mulia Bhakti Village. This study is aimed to analyze farmers' income and income distribution of smallholders in that area

### Methods

This research was conducted using a survey method in Mulia Bhakti Village, Pelepat District, Bungo District, Jambi Province. This location was purposively selected, considering that the oil palm smallholders in Mulia Bakti Village were successful and were the first to replant oil palm in Pelepat Subdistrict. Therefore, the oil palm farmers who had replanted their old oil palms were the subject of this study. In 2021, the number of oil palm farmers was 385 people distributed in 11 farmer groups. 10% of each farmer group members, represented by one farmer from each group, were randomly selected to be the respondent sample. The total number of oil palm farmers interviewed was 39. Farmers' income was counted by summing farmers' income from on-farm, off-farm, and non-farm. The Gini Ratio approach was used to analyze income distribution. The Gini Index indicates the degree of income or wealth inequality of the population in an area (Dib *et. al.*, 2018). Mathematically, the Gini Index is calculated based on the Lorenz curve, which describes the cumulative proportion of the total income owned by the population on the Y-axis with the cumulative proportion of the population in the area on the X-axis. The greater the cumulative number of people who have a low cumulative income, the more unequal the population's income in the area. Uneven increased occurred due to only a small number of people have a significant cumulative income. Picture 1 shows that the area of triangle ABC that is not coloured becomes smaller as the coloured area becomes larger. If a coloured curve completely covers the area of the triangle, it means that the Gini Index becomes 0 and the total area of the ABC Triangle is equal to 1 (one). If this is the case, it means the income of the population in this area will be perfectly unequal. On the other hand, if the cumulative population follows evenly the cumulative percentage of the population's income, the Gini ratio index will be 1, which means that the population's income is perfectly and equally distributed.



**Picture 1.** Replanting Area at Pelepat Sub District, Mulia Bakti Village.



**Picture 2.** Land Area No. 2 For Household Living During Replanting.

## Results and Conclusion

Oil palm farmers who had replanted their old oil palm plantations (Picture 2) in Mulia Bhakti Village obtained a less optimal average income. This is because their replanted plants are not yet producing optimally. The income of smallholder households in this study is calculated by adding three income sources: on-farm (oil palm plantation), off-farm, and non-farm income. On-farm income is the money from selling the oil palm production from the smallholders own plantation area. The total FFB produced during the Year 2021 is multiplied by the average price received in the same year. Off-farm income is the total money earned by a whole family member from agricultural activities other than oil palm production on his or her farm. Finally, non-farm income is the amount of money earned by all family members from off-farm activities, such as civil servants or other productive work or services. The overview of oil palm farming can be seen below (Table 1).

Data showed that the average area of oil palm plantations cultivated by smallholders at the research location was 4.15 ha, with the oil palm age varies from 3 to 21 years. Several farmers have a plant age of 3–4 years due to the replanting program. These Immature oil palm plants still produced somehow small FFB called buah pasir. As a result, the average productivity is still lower than the average productivity of PPKS standards. Therefore, farmers income from oil palm farming is not yet optimal.

Assuming that the family members of smallholder farmers, including the farmer himself, are five people per Household, and the minimum income assumption is IDR 30,000 or US\$ 2 per capita per day (BPS), in order for average farmer to overcome the poverty line needs to raise IDR 54,750,000.00 (Chrisendo, *et al.*, 2021). The amount of income needed is still above farmers' income if they only rely on oil palm farming. This means that farmers still need to be supported by activities outside of oil palm farming to live outside the poverty line, particularly during replanting periods.

Respondents who are relatively homogeneous in this research, should be evenly distributed based on average annual income. The results show that the Gini Ratio coefficient value of oil palm smallholders in Mulia Bhakti Village is classified as "unequal income distribution", where the poorest 20% of respondents only control the accumulated income of 2.90%. In comparison, 20% of the highest income group controls the accumulated income of 34.89%. Therefore, the Gini Ratio Index (GR) is 0.63 or classified as high unequal income distribution. One of the reasons for the high inequality in the income distribution of smallholder oil palm farmers in the research area is the disproportionate distribution of newly planted oil palm. Some farmer who replant larger areas might suffer from the low productivity of FFB. In the early years of the replanting program, some oil palms were still produced small size and immature FFB, and they had not been able to contribute to the income of smallholders optimally. In addition to the oil palm area, which is still dominated by the replanting of palm oil, some farmers also engaged in farming outside of oil palm. Some other farmers work in the service sector, both as civil servants and with other productive service activities. The field of work outside of oil palm farming, although not very large, can also be used as an additional income source during the replanting period. The income of non-oil palm and non-agricultural farmers in the research location is IDR 584,996.44 and IDR 8,940,000.00, respectively. By generating household income from the service sector and other productive activities, the minimum needs of farming families can be covered. The non-optimal productivity of oil palm has resulted in an uneven distribution of the average income of oil palm smallholders in the study area. This implicitly shows the need to open other business fields outside the agricultural sector for oil palm farmers in the replanting periods

## References

- Chrisendo, D., Siregar, H., & Qaim, M. (2021). Structural Transformation of Agriculture and Poverty in Indonesia. *Wiga : Jurnal Penelitian Ilmu Ekonomi*, 10(1), 1–12. <https://doi.org/10.30741/wiga.v10i1.513>
- Dib, Jonida Bou, Alamsyah, Zulkifli, Qaim, Martin. 2018. Land-use change and income inequality in rural Indonesia. *Forest Policy and Economics*. 94 (2018) 55–66. <https://doi.org/10.1016/j.forpol.2018.06.010>
- Ngadi (2019). Income Inequality of Oil Palm Plasma Farmers in South Sumatra, Indonesia. *Asian Journal of Agriculture and Development* Vol. 16 No. 2 |

**Table 1.** Household Smallholder Income in Mulia Bhakti Village, Pelepat District, Bungo Regency, the Year 2021

Indicators	Value
Average Area (Ha)	4,15
Average Tone/Ha	1,16
Average Tone/Month	5,08
Price per Kg	1.181,47
Revenue/Ha/Month	1.475.631,60
Revenue/Farm/Month	5.895.384,62
Revenue/Farm/Year	70.744.615,38
Cost/Farm/Year	20.298.244,00
On-Farm Earning/Farm/Year	50.446.371,38
Off-Farm Earning/Farm/Year	584.996,44
Non-Farm Earning/Farm/Year	8.940.000,00
Total Household Income (IDR)	59.971.367,82