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Analysis of The Contribution of Time, Income, and Family Labor Costs in Oil Palm and Rice Farming in Pino Raya Subdistrict

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ABSTRACT

Oil palm and lowland rice farming systems rely on family labor to manage and maintain operations. This study analyzes the contribution of working time, income levels, and family labor costs in oil palm and lowland rice farming households in Pino Raya Subdistrict, South Bengkulu. The research employed a descriptive quantitative method using a survey approach through interviews with 25 respondents. Data analysis included the calculation of family labor contributions through work time contribution analysis (measured in person-days), income analysis (PD = TR - TC), and analysis of the contribution of family labor costs. The results showed that family labor contributed 60%, equivalent to 48.3 person-days per 3 months, in oil palm farming and 40%, or 31.9 person-days per 3 months, in lowland rice farming. The actual income from farming was IDR 6,721,168 per 3 months for oil palm and IDR 2,407,955 per 3 months for lowland rice. Family labor costs accounted for 58% of total farming costs in oil palm and 60% in lowland rice farming. This substantial contribution indicates that family members carry out most farming activities. Oil palm and lowland rice farming can generate higher income when family labor is optimally utilized, as it significantly contributes to overall farming costs. Therefore, it is recommended that farmers maintain and maximize the use of family labor to enhance cost efficiency and support production sustainability.

Keywords: *Contribution, Cost, Income*

INTRODUCTION

Indonesia is an agrarian country where the primary economic activities are centered around the agricultural sector. As one of the main pillars of the national economy, agriculture plays a strategic role in ensuring food security for the population, increasing farmers' income, and contributing to national foreign exchange earnings through the export of agricultural products. Moreover, this sector serves as the main source of livelihood for the majority of the rural population, thus having a significant impact on community welfare. With vast land resources and favorable climatic conditions, Indonesia holds great potential to develop sustainable agriculture that can support food security and enhance competitiveness in the global market. (Ahmad *et al*., 2019).

The rapid development of oil palm plantations in Indonesia has led to an increased demand for palm oil, coinciding with the growing need for food. Oil palm is a perennial crop, whereas lowland rice is an annual crop (Fitriyani, 2023). The two farming enterprises have different characteristics in their management, which may affect the pattern of labor time contributed by family members. In the operation of oil palm and lowland rice farming, labor is provided by both family members and external workers (Anisa Purwati *et al*., 2023). Labor refers to all individuals of working age who are able to contribute their effort to the production of goods and services (Mufida *et al*., 2021)

The agricultural sector plays a vital role in the economy, particularly through oil palm and lowland rice farming. Oil palm, as a high-value export commodity, and lowland rice, as a staple food source, hold strategic

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importance for the national economy and food security. Balancing the management of both crops is essential to support economic growth, improve farmers' welfare, and ensure the sustainability of the agricultural sector. Although these two farming enterprises have different characteristics, the involvement of family labor remains a crucial factor for business continuity and farmer well-being.

South Bengkulu Regency has significant potential for oil palm and lowland rice cultivation. According to the 2023 data from the Central Statistics Agency (BPS), South Bengkulu Regency has an oil palm plantation area of 28,871.93 hectares with a total oil palm production of 314,243.08 tons, and a lowland rice area of 10,658.78 hectares with a production volume of 50,181.73 tons. Pino Raya Subdistrict is the largest producer of both oil palm and lowland rice compared to other subdistricts within South Bengkulu.

According to Yulistriani & Mahdi, (2017) Oil palm and lowland rice farming require labor for various stages, such as land preparation, nursery management, planting, maintenance, fertilization, and harvesting. The amount of labor time needed at each stage differs between oil palm and lowland rice farming (Aliffiani *et al*., 2013). The majority of oil palm and lowland rice farmers involve their family members in farming activities (Sani, *et al*., 2021). The contribution of family members in the management of oil palm and lowland rice farming is generally not accounted for in the farming expenditure costs (Amheka *et al*., 2020). Contribution is defined as the provision of money, time, labor, and ideas in the process of managing farming activities (Syukur, 2024). The contribution of family labor in managing oil palm and lowland rice farming not only helps reduce wage expenditures but also serves as an efficiency strategy to minimize production costs (Yasmin *et al*., 2021).

Family labor consists of male, female, and child workers. Humans are capable workers who can perform various types of tasks depending on their quality and skills. The capability of agricultural labor is also influenced by factors such as the farmer's age, training, education, skills, experience, and health status (Melaelika & Fitrianti, 2024). The potential of family labor includes all forms of work measured based on the amount of labor time spent during one planting period or three months (Maradou *et al*., 2019).

This study provides a novel contribution by analyzing the labor time input of family labor in oil palm and lowland rice farming in greater depth. Unlike previous studies that generally focus only on farmer productivity or income aspects, this research highlights the involvement of family labor, income, and the contribution of family labor costs to farming expenses. Furthermore, this study was conducted in Pino Raya Subdistrict, an area that has been rarely investigated regarding labor time patterns and their impact on farmers' household economies. Therefore, family labor plays a strategic role in the sustainability of agricultural enterprises, especially at small and medium scales. By understanding how family labor time input affects income and farming costs, the findings of this study can provide recommendations for farmers to optimize the use of family labor.

This study analyzes the role of family labor in two different types of farming enterprises, namely oil palm and lowland rice farming. It covers the contribution of labor time input to productivity and income, as well as how the socio-economic dynamics within farming households influence labor allocation between these two sectors. The research offers new insights into strategies for optimizing family labor to enhance farming efficiency and support more sustainable agricultural policies. Specifically, it examines how farmers in Pino Raya Subdistrict allocate their labor time between lowland rice and oil palm farming. Proper labor time allocation can improve production outcomes, whereas suboptimal allocation may lead to decreased productivity and reduced farmer income (Volta *et al.*, 2022). Pino Raya Subdistrict, with its unique potentials and challenges, serves as an interesting case study for this research. The objective of this study is to analyze the contribution of family labor time input, income levels, and the contribution of family labor costs in oil palm and lowland rice farming in Pino Raya Subdistrict.

RESEARCH METHODS

Location and Time of the Study

This study was conducted from October to November in Pino Raya Subdistrict, South Bengkulu Regency. The research location was selected purposively because this area is one of the regions with the largest production potential for oil palm and lowland rice in South Bengkulu. The data used in this study are quantitative, meaning they can be measured numerically. The data consist of primary and secondary sources. Primary data were directly obtained from the main sources through interviews using questionnaires (Pesik *et al*., 2022). This study utilizes primary data such as farmers' labor time input, production volume, costs, and income. Secondary data were obtained through reviewing, studying, and analyzing books, articles, and journals accessed via various media..

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Population and Sample

The sampling method used in this study was a census technique, where the entire population was taken as the sample due to its relatively small size, less than 100 individuals. The population consisted of farmers who own oil palm and lowland rice farms and actively work and manage their land in Pino Raya Subdistrict. According to the data, there were 25 farmers meeting these criteria, thus all were included as research samples. The sample was drawn from two villages, namely Pasar Pino Village and Pagar Gading Village in Pino Raya Subdistrict.

Data Analysis

The data analysis methods used in this study include income analysis, contribution analysis, and quantitative descriptive analysis using simple statistics. These analyses present the average labor time input of oil palm farmers and lowland rice farmers, as well as the allocation of working hours per day relative to total labor time.

Table 1. Data Analysis Formulas

No	Name	Formula	Description
1	Labor Time Contribution Analysis		
	– Labor Time (Ridwan *et al*., 2019)	$MD_{1,2} = \frac{LT}{8} NWD$	MD = Man-days LT = Labor time (hours/day) NWD = Number of working days (days/3 months) 8 = Standard working hours per day 1 = Oil palm farming 2 = Lowland rice farming
	– Contribution of Labor Time (Asmaida & Rogayah, 2020)	$C_{1,2} = \frac{LTf}{LTt}$ x 100 %	C = Contribution (%) LTf = Labor time for farming (MD/3 months) LTt = Total farmer labor time (MD/3 months)
2	Income Analysis (Edy *et al*., 2023)		
	– Total Cost	$TC_{1,2}$ = FC + VC	TC = total cost(Idr) FC = Fixed cost (Idr) VC = Variable cost (Idr)
	– Revenue	$TR_{1,2}$ = Q x P	TR = Revenue (Idr) Q = Production (Kg) P = Price (Idr)
	– Income	$I_{1,2}$ = TR - TC	I = Income (Idr) TR = Total Revenue (Idr) TC = Total Cost (Idr)
3	Contribution of Family Labor Costs to Total Farming Costs (Suratman, 2015)	$K\ TKDK_{1,2} = \frac{Family\ Labor\ Cost}{Total\ Farming\ Cost}$x100 %	K TKDK = Contribution (%) Family labor cost (Idr) Total farming cost (Idr)

RESULTS AND DISCUSSION

Respondent Characteristics

Farmer characteristics are an important factor that can influence the success of farming activities. Each farmer has a different background in terms of experience, social status, economic condition, and occupation. These characteristics provide an overview of the farmers' conditions, which can serve as a basis for understanding their capacity to manage agricultural operations. Some key aspects commonly considered in analyzing farmer characteristics include age, education level, farming experience, number of dependents, and land size. The following section presents the characteristics of oil palm and rice paddy farmers in Pino Raya District:

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Table 2. Respondent Characteristics

No	Respondent Characteristics	Respondent	Persentase (%)	Average
1	**Age (Years)**			47
	27-41	6	24	
	42-56	15	60	
	57-72	4	16	
2	**Education level**			9
	Elementary School(6 Years)	9	36	
	Junior High School (9 Years)	6	24	
	Senior High School (12Years)	10	40	
3	Number of Dependents			2
	1-3	21	84	
	4-6	4	16	
4	**Farming Experience (Years)**			26
	4-18	5	20	
	19-33	16	64	
	34-49	4	16	
5	**Land Size (Ha)**			
	Oil Palm			1,2
	0,25-0,5	9	36	
	0,6-1	11	44	
	>1	5	20	
	Rice Paddy			1
	0,25-0,5	21	84	
	0,6-1	4	16	

Source: Processed Primary Data (2024)

Based on the data presented in Table 2, the characteristics of respondents are a crucial factor that can influence the success of farming activities. These characteristics provide an overview of farmers' conditions, which serve as a foundation for understanding their capacity to manage farming operations. The research findings show that the average age of farmers is 47 years, which falls within the productive age range. This enables them to manage two types of farming simultaneously oil palm and rice farming which require significant labor input. Consequently, farmers are able to optimize their working time between oil palm and rice farming. According to the study Goma *et al*., (2021) Since the productive age ranges from 15 to 64 years, the average age of farmers in this study falls within the productive category. Being within this age range ensures the availability of a ready-to-work labor force, which is essential for supporting farming activities.

The level of education influences farmers mindset in managing agricultural activities. Most of the farmers in this study have an educational background equivalent to senior high school (Senior High School). According to the study (Mochlisin Fatkur Rohman, 2021). The education level of farmers affects their ability to receive and comprehend information. Education contributes to enhancing knowledge and insight at every level. Furthermore, senior high school (Senior High School) graduates tend to have better absorption capacity compared to those with lower educational levels, as higher education generally provides more knowledge and experience.

The average number of dependents per farmer is two, typically consisting of a spouse and children. In oil palm and rice farming, spouses generally contribute to tasks such as weeding, planting, and assisting during harvest, while children, especially those of sufficient age, can help with post-harvest activities or other light tasks. The number of dependents is an important consideration for families when making decisions about adopting innovations. According to the study Suwasono & Mulyaningtyas, (2019). Farmers with fewer family dependents tend to adopt innovations more quickly than those with larger family sizes. This is because farmers with more family members need to consider various opinions and the collective needs of the family.

The experience possessed by farmers greatly influences the success of their farming enterprises. The more experience farmers have, the greater their knowledge and skills in managing the production of both rice and oil palm simultaneously. On average, farmers involved in oil palm and rice farming have approximately 26 years of experience. According to the study Mardani *et al*., (2017). The extent to which farmers can effectively manage their farms depends on the length of their farming experience. The success of agricultural enterprises is supported not only by education but also by practical farming experience (Melaelika & Fitrianti, 2024). The amount of labor required to manage their farms and the production they achieve are also influenced by the size of the land. On average, farmers cultivate 1.2 hectares of land for oil palm and 1 hectare for rice paddies.

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Contribution of Family Labor Time Input in Farming Enterprises

The contribution of family labor time in oil palm and rice farming varies across different activities, ranging from land preparation, planting, maintenance, to harvesting. The following presents the extent of family labor time contribution for both farming enterprises simultaneously in Pino Raya Subdistrict:

Table 3. Labor Time Contribution in Farming

No	Activities	Labor Time Contribution in Farming					
		MD Farming			Contribution (%)		
		Oil Palm	Rice Paddy	Total	Oil Palm	Rice Paddy	Total
	(1)	(2)	(3)	(2)+(3) =(4)	(2)/(4)x100 =(5)	(3)/(4)x100 =(6)	(5)+(6) =(7)
1	Land Preparation	18,3	8,2	26,5	69	31	100
2	Nursery/ Seedling	5,0	0,6	5,6	90	10	100
3	Planting	12,3	7,7	20,0	62	38	100
4	Fertilizing	1,3	1,1	2,4	55	45	100
5	Spraying	1,9	0,9	2,8	66	34	100
6	Weeding	3,0	5,8	8,8	34	66	100
7	Harvesting	5,0	6,4	11,4	44	56	100
8	Frond Cleaning / Dehusking	1,5	1,2	2,7	55	45	100
Total Man-Days		48,3	31,9	80,2	60	40	100

Source: Processed Primary Data (2024)

The results presented in Table 3 indicate the magnitude of family labor time contribution in oil palm and rice paddy farming, performed by family members (husband, wife, and children). The total labor input for both farming enterprises amounts to 80.2 person-days over a three-month period. The labor contribution for oil palm farming is 60%, equivalent to 48.3 person-days per three months. Oil palm farming requires more labor due to generally larger land areas and higher work intensity associated with the long cultivation period of the crop (Adzani & Arif, 2023).

Activities such as planting, harvesting, and land preparation require substantial labor, especially in agricultural and plantation sectors. In this study, the comparison is made between oil palm farming with an average land area of 1.2 hectares and rice paddy farming with an average of 1 hectare. In oil palm farming, these activities demand significant labor because land preparation involves heavy tasks such as clearing land, weeding, and preparing planting holes. Planting also consumes considerable working time, as it involves transferring seedlings from the nursery to the planting area. Oil palm planting is carried out manually with specific spacing arrangements (usually 10 x 10 meters between trees) to ensure optimal growth. Harvesting requires extensive labor since it is still done manually by cutting fresh fruit bunches (FFB) using tools such as egrek or dodos, cleaning the cut fronds, collecting the bunches to temporary collection points (TPS), and ensuring the fruit is harvested at the optimal ripeness stage (Ikhsan *et al*., 2019).

Activities that require relatively little labor time include fertilization because oil palm fertilization is carried out once every three months. The fertilization process involves spreading fertilizer around the oil palm plants, which does not demand a large amount of labor (Sani, Munadi, *et al*., 2021). The oil palm farming still relies on external labor for land preparation and planting activities, as these tasks require a large number of workers. The contribution of family labor in rice paddy farming is 40%, amounting to 31.9 man-days per three months, with a ratio of 16.4 man-days. Labor input in rice paddy farming is lower because rice is an annual crop that does not require long-term labor (A. Zaenudin *et al*., 2023).

In rice paddy farming, labor is heavily utilized in land preparation, planting, and harvesting activities. Land preparation requires intensive labor for tasks such as plowing and land leveling. Planting demands significant labor input because rice cultivation requires precise spacing between plants (usually 10 x 10 cm), and the planting process is carried out manually with prolonged bending, which slows down the planting process. Rice harvesting involves cutting the rice stalks, gathering, and transporting the harvested crops (Kautsar *et al*., 2018). If the paddy field area is large or the available labor is limited, the required working time increases. This finding aligns with previous research (Bullu *et al*., 2024) The paddy rice farming activities require the most labor during land preparation, planting, and harvesting. Activities that demand less labor time include seedling, as paddy seedlings are sown by scattering seeds on prepared fields. Paddy rice farming still requires external labor for tasks such as

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land preparation, planting, harvesting, and threshing (Putri *et al.*, 2024).

Farming Costs

Production results in oil palm and rice farming are greatly influenced by the costs incurred. The costs include fixed costs and variable costs. The production costs commonly incurred for cultivating rice and oil palm are presented in the following table:

Table 4. Production Costs of Oil Palm and Rice Farming

No	Description	Farming			
		Oil Palm (Idr/3Months)		Rice Paddy (Idr/3Months)	
		Real	Unreal	Real	Unreal
1	Variable Costs				
	a. Seeds	1.182.600	1.182.600	159.420	159.420
	b. Fertilizer	620.400	620.400	229.900	229.900
	c. Pesticides	149.100	149.100	54.000	54.000
	d. Marketing	567.372	567.372	289.840	289.840
	e. Labor				
	Family Labor	-	4.029.533	-	2.531.415
	Non-Family Labor	224.000	224.000	841.765	841.765
	Total Variable Costs	2.743.472	6.773.005	1.574.925	4.106.340
2	Fixed Costs				
	a. Equipment Depreciation	-	186.441	-	99.175
	Total Fixed Costs	-	186.441	-	99.175
Total Production Costs		2.743.472	6.959.446	1.574.925	4.205.516

Source: Processed Primary Data (2024)

Based on the results presented in Table 4, the largest expenditure in oil palm farming is family labor costs (TKDK), amounting to IDR 4,029,533. This indicates that most of the work in oil palm plantations is carried out by family members without incurring direct monetary expenses. Activities such as maintenance, fertilization, weeding, and harvesting require substantial labor input; however, since these tasks are performed by family labor, the costs are not recorded as actual cash outflows. If these activities were outsourced to external labor, the costs would be significantly higher. Furthermore, seed costs constitute the second-largest expense in oil palm farming, amounting to IDR 1,182,600, with an average seedling usage of 100 plants for a 1.2-hectare plot. Seed costs in oil palm cultivation are higher compared to rice farming due to the perennial nature of the crop, which demands a substantial initial investment. The selection of high-quality seedlings is critical to ensure long-term productivity, thus requiring greater initial expenditure from farmers. In addition, marketing costs in oil palm farming reach IDR 567,372, which is relatively high. These costs are influenced by the distance between the plantation and the processing factory, as well as transportation fees, since the harvested oil palm fruit must be processed immediately to prevent quality degradation.

In rice farming, the largest family expenditure is family labor costs, amounting to IDR 2,531,415. Tasks such as land preparation, planting, maintenance, harvesting, and grain drying are predominantly performed by family members without direct monetary expenses. External labor costs amount to IDR 841,765. This is due to the relatively high labor demand during certain production stages, particularly land preparation and harvesting. Since not all tasks can be completed by family labor alone, farmers often need to hire external workers, making this one of the major expenses in the rice farming production system. Additionally, marketing costs reach IDR 289,840, which is also considerable, as it includes transportation of harvested crops to markets or grain storage locations.

The high family labor costs in both oil palm and rice farming reflect the significant involvement of family members in farming activities as well as differences in labor requirements between the two commodities. This indicates that production costs appear higher in non-cash calculations, while most of the labor is still borne by the family, which can be advantageous in reducing actual expenditures on external labor. According to Fitriadi *et al*., (2017) This indicates that family labor costs constitute a more dominant component in the cost structure of farming enterprises, especially for activities requiring intensive labor such as land preparation, planting, and harvesting. Additionally, the costs of seeds, fertilizers, pesticides, marketing, and external labor are all included in the variable costs of oil palm cultivation.

Fixed costs play a relatively small role in the production cost structure of both types of farming enterprises. The oil palm farming recorded fixed costs amounting to IDR.186,441 from the total production costs, while rice farming only accounted for IDR.99,175. These costs originate from the depreciation of agricultural tools

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such as hoes, machetes, sickles, harvesting tools (dodos, egrek), and hand sprayers, which are considered non-cash expenses. The efficiency of agricultural tools is often influenced by the economic lifespan of the equipment and the frequency of its use, as noted in studies on the production economics of farming enterprises.

Farm Revenue

The revenue of farmers cultivating oil palm and rice fields is calculated by multiplying the total production by the selling price per kilogram. Higher production results in greater revenue. The production figures represent the total harvest obtained over a three-month period. The table below presents the production and revenue data of rice and oil palm farmers:

Table 5. Revenue from Oil Palm and Rice Farming Enterprises

No	Description	Farming			
		Oil Palm		Rice Paddy	
		Real	Unreal	Real	Unreal
1	Production (Kg/3 Month)	3864.6	3864.6	635	1340.08
2	Price (Idr/kg)	2.450	2.450	6.340	6.340
3	Revenue (Rp/3 Month)	9.464.640	9.464.640	3.982.880	8.497.300

Source: Processed Primary Data (2024), Description: Real = actual revenue (cash), Unreal = imputed revenue (non cash)

Based on the data presented in Table 5, which includes production, prices, and income from two types of farming enterprises oil palm and lowland rice over a three-month period (equivalent to one cropping season for rice), there are notable differences in the characteristics and economic outcomes of each farming type. The discrepancy between actual (real) and imputed (non-real) income, particularly in lowland rice farming, can be attributed to the consumption patterns of farming households. Most rice farmers do not sell their entire harvest; instead, a portion is reserved for household consumption. As a result, the recorded production and real income are lower, as only the portion sold is considered in the calculation. Conversely, in the imputed income calculation, the entire production is assumed to have economic value. The portion consumed by the household is also valued at prevailing market prices, thus providing a more comprehensive measure of total production value. Consequently, imputed income tends to be higher than real income.

The oil palm farming enterprise produced a total of 3,864.6 kilograms of fresh fruit bunches over a three-month period. Harvesting was conducted six times, with a two-week interval between each harvest. This production amount is significantly higher compared to lowland rice farming, which yielded only 1,340.08 kilograms of unhulled rice. The substantial difference in production may be influenced by variations in land area, crop characteristics, or the management practices applied to each farming system. Oil palm is a plantation crop that generally produces large quantities of fruit, whereas lowland rice is a food crop with a fixed harvesting cycle and more limited yield per unit area. Farmers naturally produce diverse outputs, and factors such as the amount of fertilizer used, pest incidence, and crop maintenance all contribute to variability in productivity. *(*Pratiwi *et al*., 2019)

The selling prices of oil palm and lowland rice differ significantly, with the price of rice (in unhulled form) per kilogram being higher than that of oil palm. Farmers typically sell their oil palm production in the form of fresh fruit bunches (FFB) to local traders, while lowland rice is sold as wet unhusked rice to middlemen. The price of oil palm is Rp 2,450 per kilogram, whereas the price of unhusked rice reaches Rp 6,340 per kilogram. This disparity reflects the economic value of each commodity in the market. Rice, as a processed product of paddy, is a staple food with consistently high demand, resulting in a higher market price. In contrast, the price of oil palm is influenced by global market dynamics, particularly because Crude Palm Oil (CPO) is an export commodity that is sensitive to international price fluctuations. According to research Pratiwi *et al*., (2019) Changes in global oil prices have a direct impact on the selling price of fresh fruit bunches (FFB) of oil palm. One of the main challenges faced by farmers is the price volatility of FFB, which is often caused by fluctuations in global palm oil prices. A decline in palm oil prices affects farmers in Pino Raya District, as the unstable prices influence their revenue and income.

Farm Income

The total revenue obtained over a three-month period covering six harvests for oil palm farming and one planting season for lowland rice farming when subtracted by the total production costs incurred, results in what is referred to as income. The following presents the amount of income earned by oil palm and lowland rice farmers in Pino Raya District:

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Table 6. Income from Oil Palm and Lowland Rice Farming

No	Description	Farming			
		Oil Palm		Rice Paddy	
		Rill	Unrill	Rill	Unrill
1	Revenue (Idr/3 month)	9.464.640	9.464.640	3.982.880	8.497.300
2	Production Costs (Idr/3 month)	2.743.472	6.959.446	1.574.925	4.205.516
3	Income (Idr/3 month)	6.721.168	2.505.194	2.407.955	4.291.784

Source: Processed Primary Data (2024)

Based on the research results presented in Table 6, the income derived from oil palm and lowland rice farming shows a clear distinction between real income and imputed (unreal) income. This difference arises from the inclusion or exclusion of family labor costs. In real income calculations, family labor is not considered part of production costs, resulting in lower total production expenses and thus higher reported income. In contrast, imputed income accounts for the economic value of family labor as if it were paid labor, leading to higher production costs and consequently lower income. In general, real income is consistently higher than imputed income due to the exclusion of family labor costs in the real income calculation. This highlights the significant role of family labor in influencing the overall production costs of both oil palm and rice farming operations.

In oil palm farming, the real income or cash income is higher than the imputed income, indicating the significant profit potential when family labor and internal resources are optimally utilized *(Nainggolan et al*., 2023). However, reliance on family labor can also become a limitation in situations where the family labor capacity is insufficient, especially when scaling up production. The higher imputed costs also indicate the need for greater cost allocation if all inputs are accounted for, including labor that is not directly paid.

For rice farming, the real income or cash income is lower than the imputed income. This is because a larger portion of the rice production is consumed for household needs rather than sold. On average, farmers in Pino Raya subdistrict cultivate rice primarily for subsistence or household consumption, rather than as their main source of income. Farmers in Pino Raya typically manage two farming enterprises simultaneously, namely oil palm and rice farming.

Farmers allocate their working time between oil palm and rice farming to meet their needs, with oil palm farming serving as the primary source of income and rice farming mainly fulfilling household food requirements. The income from rice farming based on total costs is calculated by subtracting the total costs from the total revenue, while the income based on cash costs is calculated by subtracting the cash costs from the total revenue. (Sukmayanto *et al*., 2022). Rice farming is more efficient in production costs, particularly in terms of real (cash) costs (Saragi *et al*., 2023). The characteristics of rice as a seasonal commodity allow for the optimization of input use, such as mechanization, to reduce the need for manual labor. Based on the research results, the real income from oil palm farming over a three-month period, or six harvests, was recorded at IDR 6,721,168, while the income from rice farming during one cropping season amounted to IDR 2,407,955. Farm income is also influenced by the amount of production and the instability of selling prices.

Contribution of Family Labor Costs

The contribution of family labor costs in farming operations is one of the main components influencing the structure of production costs. Family labor typically consists of the husband, wife, and children. The cost of family labor is usually estimated based on the economic value of the time invested by family members during each stage of the farming activities (Akmal *et al*., 2023). This contribution value reflects the extent to which family labor reduces the need for external labor, thereby impacting the cost efficiency of the farming enterprise. The following presents the magnitude of family labor cost contributions for oil palm and rice farming in the Pino Raya District:

Table 7. Contribution of Family Labor Costs in Oil Palm and Rice Farming Enterprises

No	Description	Oil Palm		Rice Paddy	
		Total (Idr)	Contribution (%)	Total (Idr)	Contribution (%)
1	Family Labor Cost	4.029.533	58	2.531.415	60
2	Other Costs	2.929.913	42	1.674.101	40
Total Farming Costs		6.959.446	100	4.205.516	100

Source: Processed Primary Data (2024)

Based on the results presented in Table 7, the total farming costs incurred were Rp 6,959,446 for oil palm farming and Rp 4,205,516 for rice farming. These costs consist of Family Labor Costs (TKDK) and Other Costs such as seeds, fertilizers, pesticides, marketing, and external labor. Both cost components contribute differently to supporting farming activities. The Family Labor Cost for oil palm farming amounted to Rp 4,029,533, accounting

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for 58% of the total oil palm farming costs. Meanwhile, the family labor cost for rice farming was Rp 2,531,415, contributing 60% of the total rice farming costs. This significant contribution indicates that most farming activities are carried out by family members. This finding is consistent with previous research Putra *et al*., (2019) Family labor contributes between 14.89% and 61.69% to the cost structure of farming for various vegetable cropping patterns. This indicates cost efficiency by reducing expenditures on wages for external labor. However, the high dependence on family labor also reflects a significant allocation of time and effort from family members during the production process (Suratman, 2015).

The involvement of family labor in both oil palm and rice farming is crucial because without the use of family labor, production costs could increase sharply, which would reduce the profitability of the enterprise. In other words, family involvement not only reduces labor costs but also enhances control over farm management, allowing adaptation to changing needs during the production process. Therefore, maximizing the role of family labor is essential for maintaining the sustainability and efficiency of farming enterprises, whether in oil palm or rice cultivation. According to research Saragi *et al*., (2022) This shows that the largest contribution to production costs in farming enterprises comes from labor wage expenses, with the majority of the work being carried out by family members.

CONCLUSION

There is a difference in the contribution of labor time between oil palm and rice farming enterprises. The total man-days (MD) required for oil palm is 48.3 MD per 3 months, which is higher compared to 31.9 MD per 3 months for rice farming. The contribution of family labor in oil palm farming reaches 60%, while in rice farming it is 40%. In terms of income, oil palm generates IDR 6,721,168 per 3 months, higher than rice farming which yields IDR 2,407,955 per 3 months. Family labor costs contribute 58% in oil palm and 60% in rice farming to the total production costs.

This study is limited in its geographic scope and does not take into account external factors such as seasonal variations, access to technology, and government policies. Therefore, future research should expand the coverage area and consider these factors. As a recommendation, maintaining the involvement of family labor is important to reduce the reliance on external labor costs. Additionally, optimizing the use of technology and mechanical tools can reduce labor burden, while implementing more efficient cultivation techniques can enhance productivity and harvest yields.

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