



Economic Feasibility Analysis of Coconut Oil Business in Patampanua Village, Matakali District

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Received : June 14, 2025

Revised : June 28, 2025

Published: June 30, 2025

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ABSTRACT

Patampanua Village has great potential in developing the coconut oil industry because of the community's experience and skills in processing coconuts. However, the traditional methods limit the added value of the product. Therefore, a comprehensive economic analysis is needed to determine the feasibility and potential of this business. This study aims to analyze the economic feasibility of the coconut oil business in Patampanua Village. The research method used is a quantitative and qualitative method with a saturated sampling technique on 30 coconut oil business actors. We collected data through observation, questionnaires, and documentation, then analyzed using income analysis, R/C Ratio, and Break Even Point (BEP). The results of the analysis show that the coconut oil business has a potential income of IDR 30,793,000 per month and a profit of IDR 16,751,929 per month. The R/C Ratio value of 2.19 indicates that this business has good production efficiency. Break Even Point (BEP) is achieved at a minimum sale of 11 units or IDR 512,046. The obstacles facing this business include the difficulty of getting a stable market and fluctuating raw material prices. Strategies that can be done to increase revenue and profit include building a marketing network, developing marketing strategies, managing raw material prices, and product diversification. The results of this study can be a reference for entrepreneurs and local governments to develop coconut oil businesses in Patampanua Village.

Keywords: Business Feasibility, Income, Coconut, BEP

INTRODUCTION

The coconut plant (*Cocos nucifera* L.) plays a vital role in the lives of Indonesian people, not only because of its high economic value but also due to its significant social and cultural importance. Every part of the coconut plant, from the flesh to other parts, has substantial benefits and can be utilized in various ways, making it a highly versatile crop. The flesh of the coconut can be processed into various products, such as coconut milk, coconut oil, and copra, which are not only used in everyday cooking but also have high export value. Additionally, young coconut water is known for its refreshing health benefits. Beyond the flesh, other parts of the coconut plant also offer significant benefits. Coconut leaves can be used as building materials and handicrafts, while the trunk can be used for construction and furniture-making. Even coconut husks can be processed into various products, such as ropes, mats, and plant media. Thus, coconut plants not only serve as a source of income for the community but are also an integral part of Indonesia's social and cultural life. Therefore, the development and preservation of coconut plants need to be continuously pursued to ensure the sustainability of their benefits for both the community and the nation (Defitri, 2025).

Coconut oil is a product derived from the flesh of coconuts and is widely produced in rural areas as well as small and medium-sized industries. Mature coconut flesh contains approximately 33-35% oil. Physically, coconut oil varies in color from clear liquid to yellowish-brown and has a distinctive aroma (Hasang et al., 2022).

Indonesia is a country rich in natural resources, particularly in agriculture, offering various benefits to

human life. Every part of the coconut plant, from roots to stems, leaves, and fruit, can be utilized for both culinary and non-culinary purposes (Nur et al., 2025). Indonesia has significant potential for developing the coconut oil industry, especially in rural areas abundant in coconut resources. One village with great opportunities for developing coconut oil businesses is Patampanua Village. The village boasts vast lands with thriving and productive coconut plantations, ensuring a steady supply of raw materials for coconut oil production. The coconuts produced in Patampanua Village are of high quality, which can result in high-quality coconut oil.

Patampanua Village has great potential in the development of the coconut oil industry, with a community that already has experience and skills in processing coconuts into coconut oil. Coconut oil has broad market opportunities both locally and internationally, allowing the village to increase community income through coconut oil exports. The development of the coconut oil industry in Patampanua Village can increase community income, create jobs, and improve the village economy. However, this potential has not been optimally utilized. Many villagers still rely on traditional methods in processing coconuts, resulting in suboptimal value-added products. Furthermore, the lack of research on the economics of coconut oil in rural Sulawesi hinders the development of this industry due to the lack of accurate information and data on the feasibility and potential of the coconut oil business.

This study aims to analyze the economics of the coconut oil business in Patampanua Village, identify the factors that affect its economic feasibility, and develop effective strategies for the development of this business. The results of this study are expected to serve as a guide for the community of Patampanua Village, local government, and other stakeholders in optimizing the economic potential of the coconut oil business, thereby improving welfare and local economic development.

This study is highly relevant and important to conduct because it can make a tangible contribution to the development of the coconut oil business in Patampanua Village and provide long-term benefits to the local community. Through a systematic and data-driven approach, this study is expected to fill the research gap on the economics of coconut oil in rural Sulawesi and provide valuable information for the development of this industry.

RESEARCH METHODS

Research Location and Time

This research was conducted in Patampanua Village, Matakali District. The location was selected purposively, based on the consideration that the area is one of the coconut-producing regions with abundant resources and has great potential for developing coconut oil businesses. The research was carried out from February to March 2025.

Determination of Population and Sample

This study uses a saturated sampling technique with a population of 30 coconut oil business actors in Patampanua Village, operating within a 2 km radius from the village center. As a result, all units can be comprehensively studied without any selection. The respondents in this study exhibit diversity in several aspects, such as gender (male and female), years of experience (ranging from a few years to several decades), and scale of operation (ranging from small to large scale). The use of saturated sampling technique and understanding of respondent diversity enables this study to provide comprehensive and representative data for analyzing economic aspects such as production costs, revenue, profits, and challenges faced by business actors.

Types and Sources of Data

The types of data used in this study are divided into two categories: qualitative data and quantitative data. Qualitative data refers to non-numerical data, which is obtained through interviews with coconut oil business owners related to the issues being discussed in the research. Quantitative data, on the other hand, refers to numerical data or qualitative data that has been quantified. This data is obtained from calculations based on questionnaires that have been administered, related to the issues being researched. The data sources used include primary data and secondary data. Primary data is data obtained directly through observations conducted at the research location, Patampanua Village, Matakali District, Polewali Mandar Regency, as well as through interviews with respondents. Secondary data is data obtained or collected from various sources or specific agencies. This data is obtained from institutions closely related to the research, through data extraction, and is subsequently used as a tool for analysis in solving problems.

Data Collection Methods

Data collection in this study was conducted through several methods, including:

1. Observation: Direct observation of the research object to obtain a real picture of the research location.

2. Questionnaire: A method of collecting data by providing a series of written questions to respondents to fill out and return. The purpose of the questionnaire is to obtain more extensive and structured information about the research topic. Questionnaires can be used to collect data from a large number of respondents efficiently.
3. Documentation: A method of collecting data by gathering and analyzing documents relevant to the research topic. These documents can include reports, notes, photos, videos, or other documents that can provide information about the research topic. Documentation can be used to obtain more objective information and can help verify data obtained through other methods.

Data Analysis

The primary and secondary data obtained from this research will be analyzed quantitatively and qualitatively as follows: According to Amiruddin (2019), business income can be determined by calculating the difference between total revenue (TR) and total cost (TC). Business revenue is the product of the production output and the selling price of the product (coconut sugar). Costs refer to all expenses incurred in acquiring production factors, which can be calculated using the following formula:

$$\pi = TR - TC$$

Description:

π = Net income (Rp)

TR= Total Revenue (Rp)

TC= Total Cost (Rp)

According to Maruta (2018) Break even point (BEP) is the breakeven point where the company's position does not make a profit and does not experience a loss. In BEP management, it is very important in making decisions to withdraw products or develop products.

The calculation of BEP based on units uses the formula:

$$BEP (Q) = \frac{FC}{P - V}$$

Where:

P = Selling Price Per Unit (Kg)

V = Variable Cost Per Unit (Rp)

FC = Fixed Cost Per Unit (Rp)

Q = Number of Units Produced (Kg)

Business feasibility analysis is a measurement to determine the feasibility of a business that is worth developing. According to Faradiba (2020), business feasibility can be known by using three Benefit cost ratio (B/C ratio) approach formulas. B/C stands for Benefit Cost Ratio or known as the comparison between total costs (TC) and net profit with the following formula:

$$B/C \text{ Ratio} = \frac{\text{Profit} \setminus \text{Net (Rp)}}{\text{Total} \setminus \text{Cost} \setminus \text{Production (Rp)}}$$

The following are the B/C ratio assessment criteria:

If the B/C ratio value is >1 , then the business is feasible to develop

If the B/C ratio <1 , then the business is not feasible to develop

This feasibility analysis shows how much business benefits will be obtained by entrepreneurs for every rupiah of costs incurred for business activities, both production processes and others. If the B/C Ratio is greater than 1 ($B/C > 1$), it means that every additional cost incurred will generate additional income that is greater than the additional costs or, simply put, the business activity is profitable. If the B/C Ratio value is less than 1 ($B/C < 1$), it means that the additional costs incurred will generate additional income that is less than the additional costs or, simply put, the business activity is at a loss (Ferawati and Syam, 2021). Constraint Analysis through in-depth interviews with business actors regarding: Production constraints (raw materials, tools, and human resources), Access to capital and government assistance, Market Competition.

The R/C ratio and BEP were chosen as analytical tools in this study because they are simple and easy to understand, relevant to the research objectives, and can measure the efficiency and feasibility of the business. The R/C ratio and BEP are also suitable for small and medium-sized enterprises such as coconut oil production in Patampanua Village. Meanwhile, NPV and ROI were not chosen due to the complexity of calculations and assumptions required, as well as their greater relevance to long-term investment analysis and large-scale projects. Therefore, the R/C ratio and BEP were selected as the most suitable analytical tools for this study.

RESULTS AND DISCUSSION

Patampanua Village has great potential in coconut oil production because of its vast land with fertile and productive coconut plants. With the experience and skills of the village community in processing coconuts, coconut oil production can be carried out efficiently. The production process includes selecting raw materials, peeling, washing, grating, squeezing coconut milk, and cooking to pressing the oil dregs. Marketing of coconut oil is carried out through collectors who distribute to retailers in Polewali Mandar Regency, so that consumers can enjoy the product at competitive prices. This system allows producers to sell products more easily and efficiently, as well as increase the reach of the coconut oil market.



Figure 1. Coconut Oil Production Results in Patampanua Village

Economic Analysis Variable costs in the Coconut oil business in Patampanua Village consist of coconut raw materials, bottle packaging and labor, gasoline and coconut fiber fuel, the following are the details:

Table 1. Variable Costs of Coconut Oil Business in Patampanua Village Per Month

Variables	Amount	Unit	Unit Price	Total/Month
Coconut	2.595	Buah	5.000	12.975.000
Bottle Packaging	10	40 pcs	5.000	50.000
Labor	18	Hok	20.000	360.000
Gasoline	18	Liter	10.000	180.000
Coir Fuel	4	Ton	97.000	388.000
Amount				13.953.000

Source: Processed Primary Data (2025)

According to the variable cost table above, it is known that to produce coconut oil, 2,595 coconuts are needed with a purchase price of IDR 5,000 and a packaging cost of 10 kg consisting of 40 bottles, for labor costs per day, which is IDR 20,000 with 18 production times per month, gasoline costs are used for fuel for the coconut grater machine and for coconut fiber fuel used to cook coconut milk into coconut oil.

Fixed costs in the coconut oil business consist of equipment such as a coconut peeler as a tool to separate the flesh from the coconut fiber, a machete as a tool to split the coconut, a pick to separate the flesh from the coconut shell, a coconut grater machine as a coconut flesh decomposer, a basin as a container, a sieve as a tool to separate the coconut pulp from the coconut milk, a press tool is used to ensure that there is no more coconut milk in the coconut pulp and a bucket as a tool to transfer the coconut milk into a frying pan, a frying pan is used as a container to cook the coconut milk into oil and a stove made of clay as a heating tool made of bricks and soil, with the following details:

Table 2. Fixed Costs of Coconut Oil Business in Patampanua Village

Equipment	Amount	Tool Age (Month)	Unit	Initial Price	Final Price	Tool Reduction/ Month
Coconut Grading Machine	1	120	Pcs	1.906.667	190.666,7	14.300
Base	4	12	Pcs	35.667	3.567	10.700
Strayer	2	12	Pcs	15.000	1.500	2.250
Differs	2	12	Pcs	5.800	2.000	633
Coconut Pressing Tool	1	60	Pcs	50.000	5.000	750
Chooling Tool	5	24	Pcs	15.000	1.500	2.813
Coconut Peeling Tool	1	60	Pcs	200.000	20.000	3.000
Pan	2	12	Pcs	270.000	27.000	40.500
Spatula	2	12	Pcs	20.000	2.000	3.000
Stove	1	24	Pcs	150.000	15.000	5.625
Parang	2	60	Pcs	150.000	15.000	4.500
Amount						88.071

Source: Processed Primary Data (2025)

Income Analysis

To conduct an income analysis, we need to know the production costs and selling prices. The following is a table of income calculations for coconut oil businesses in Patampanua Village:

Table 3 Analysis of Income from Coconut Oil Businesses in Patampanua Village Per Month

Description	Amount	Unit	Unit Price (Rp)	UDR/Month
A. Income / Production	371	Liter	83.000	30.793.000
B. Variable Cost				
Coconut	2.595	Buah	5.000	12.975.000
Bottle Packaging	10	40pcs	5.000	50.000
Labor	18	Hok	20.000	360.000
Gasoline	18	Liter	10.000	180.000
Coir Fuel	4	Ton	97.000	388.000
Total Variable Cost				13.953.000
C. Fixed Costs				
Depreciation Value Of Equipment				
Total Fixed Cost				88.071
Total Cost				14.041.071
Revenue				16.751.929

Source: Processed Primary Data (2025)

Based on table 4.3 above, the coconut oil business in Patampanua Village has an income of IDR 30,793,000 per month. After being reduced by variable costs of IDR 13,953,000 and fixed costs in the form of equipment depreciation of IDR 88,071, the total cost incurred is IDR 14,041,071 per month. Thus, the income of the coconut oil company in Patampanua Village is IDR 16,751,929 per month. These results indicate that the coconut oil company in Patampanua Village has a fairly large income and is promising for further development.

R/C Ratio Analysis

R/C Ratio (Return on Cost Ratio) is a ratio used to measure production efficiency. R/C Ratio is calculated by dividing revenue by production costs.

R/C Ratio = Revenue / Production Cost

= Rp 30,793,000/ Rp 14,041,071

= 2.19

Table 4. Analysis of R/C Ratio of Business in Patampanua Village

No	Description	Average Cost (Rp)
1	Total Revenue	30.793.000
2	Total Cost	14.041.071
R/C RATIO		2,19306633

Source: Processed Primary Data (2025)

This means that every Rp 1 spent on production costs will generate revenue of Rp 2.19. The higher the R/C Ratio, the more efficient the production. Thus, the analysis of revenue and R/C Ratio shows that production has the potential to generate significant revenue and profit, and has good production efficiency. Break Event Point.

In calculating BEP based on units and based on rupiah in the coconut oil business in Patampanua Village, classifying fixed costs and variable costs shows that the average fixed costs incurred per month are Rp88,071. - and the average variable costs incurred per month are Rp13,953,000.- with an average production per month of 371 pcs/month with a monthly production selling price of Rp83,000.-/pcs.

To conduct a Break Even Point (BEP) analysis for the coconut oil business in Patampanua Village, we need to use the following formula:

BEP in Units:

BEP (Unit) = Fixed Cost / (Selling Price per Unit - Variable Cost per Unit)

1. Variable Cost per Unit = Variable Cost / Production

Variable Cost per Unit = Rp 13,953,000 / 370.66 units = Rp 37,634 per unit

2. Selling Price per Unit = Total Revenue / Production

Selling Price per Unit = Rp 16,751,929 / 371 units = Rp 45,421 per unit (note that the selling price per unit given is Rp 83,000, but the calculation above uses a different total revenue, so there is a difference)

3. BEP (Unit) = Fixed Cost / (Selling Price per Unit - Variable Cost per Unit)

Using the selling price per unit calculated from total revenue: BEP (Unit) = Rp 88,071 / (Rp 45,421 - Rp 37,634)

BEP (Unit) = Rp 88,071 / Rp 7,787

BEP (Unit) = 11.3 units

BEP in Rupiah:

BEP (Rupiah) = Fixed Cost / (1 - (Variable Cost / Total Revenue))

a. Variable Cost Ratio = Variable Cost / Total Revenue

Variable Cost Ratio = Rp 13,953,000 / Rp 16,751,929 = 0.828

b. BEP (Rupiah) = Fixed Cost / (1 - Variable Cost Ratio)

BEP (Rupiah) = Rp 88,071 / (1 - 0.828)

BEP (Rupiah) = Rp 88,071 / 0.172

BEP (Rupiah) = Rp 512,046

So, BEP in units is around 11.3 units and BEP in rupiah is around Rp 512,046. This means that the coconut oil business in Patampanua Village needs to sell at least 11.3 units or achieve a minimum income of Rp 512,046 to reach the break-even point and not experience a loss. It should be noted that there is a difference between the selling price per unit given and that calculated from total income, so the BEP calculation results can differ depending on the assumptions used.

Table 5. Break Even Point of Coconut Oil Business in Patampanua Village

Comparison	Business	Break Event Point
Basic Unit (Unit)	371 Unit	11,3 Unit
Basic Rupiah (Rp)	Rp. 30.793.000	Rp.512.046

Source: Processed Primary Data (2025)

So, the Break Even Point (BEP) for production is around 11 units (Rounded), or equivalent to Rp512,046. This means that the Coconut oil business group must sell at least 11 units to reach the break-even point.

Business Constraints

Based on the results of direct interviews with farmers, there are several constraints faced by the business, namely: The business has difficulty finding a stable market to market its products. As a result, production is only carried out when there is an order, so that production cannot be carried out continuously. The unstable price of coconut raw materials causes the selling price to be unstable. This can affect business profits and make production planning difficult. From the results above, it can be concluded that the business faces challenges in finding a stable market and facing fluctuations in the price of coconut raw materials. To overcome this, the business can carry out several strategies, such as:

- Building a marketing network: The business can build a wider marketing network to increase the opportunity to sell its products.
- Developing a marketing strategy: The business can develop an effective marketing strategy to increase awareness and demand for the product.
- Managing raw material prices: The business can manage raw material prices by contracting with suppliers or looking for more stable alternative raw materials.
- Developing product diversification: The business can develop product diversification to reduce dependence on one type of product and increase the opportunity to sell other products.

By implementing the strategies above, businesses can increase their chances of selling their products and reduce the impact of fluctuations in the price of coconut raw materials.

CONCLUSION

Based on the research results, it was found that the economic analysis shows that coconut oil production in Patampanua Village has the potential to generate revenue of Rp30,793,000 per month and profit of Rp16,847,818 per month. The R/C Ratio value of 2.19 indicates that the production has good production efficiency. Meanwhile, to reach the break-even point (BEP), the Coconut Oil Business must sell at least 11 units. To improve efficiency and profits, the government can consider policies such as subsidies for grinding machines that can reduce variable costs by up to 15%. Thus, the Coconut Oil Business in Patampanua Village can increase its production and expand its market to increase revenue and profits. Future studies should assess the gender gap in coconut oil income, as well as analyze the impact of changes in input and output prices on the revenue and profits of the Coconut Oil Business. Additionally, further research can be conducted to improve product quality and production processes to increase efficiency and profits.

REFERENCES

- Arrasyid, A. R. (2021). The Effect of Production Costs and Selling Prices on Farmers' Income. Paper Knowledge. Toward a Media History of Documents, 2021, 86-103.
- Defitri, Y. (2025). Coconut Plant (*Cocos nucifera* L.) and Some Pests and Diseases That Attack It.
- Fatahillah, I., Fauzi, A., Rambey, T., Syafitri, A. N. A., Maulana, F., Firda, M. A., ... & Ramadhan, A. (2023). Analysis of the Application of Cost Behavior to the Profitability of MSMEs in Indonesia. *Journal of Economics and Management*, 2(3), 189-197.
- Hansang, D. I., Tooy, D., & Ludong, D. P. (2022, March). Study on Coconut Oil Production Process Using Coconut Processing Equipment and Machinery for Small-Scale Industries. In *Cocos* (Vol. 14, No. 4).
- Hamsah, H., & Nirmawala, N. (2022). Coastal Abrasion Disaster Zonation in Sappoang, Polewali Mandar Regency. *Journal of Geography: Media Information Development and Geography Profession*, 19(2), 62-72.
- Hamsah, H., Nirmawala, N., Asrandi, A., & Saleh, N. (2023). Agro-Tourism Area Model in Bulu Using Spatial Analysis. *Kepariwisata: Scientific Journal*, 17(3), 230-238.
- Hasan, F., Fiddaaroini, A., & Nugroho, T. R. D. A. (2025). Factors Affecting the Selection of Sweet Potato Sales Systems in Sidorejo District, Magetan Regency. *Journal of Food System and Agribusiness*, 45-56.
- Hasan, H. (2022). Development of a Centralized Documentation Information System at STMIK Tidore Mandiri. *Jurasik (Journal of Information Systems and Computers)*, 2(1), 23-30.
- Ibrahim, R., Halid, A., & Boekoesoe, Y. (2021). Analysis of Costs and Income of Non-Technical Irrigation Rice Tunas Kelapa Business in Tenilo Village, Limboto District, Gorontalo Regency. *AGRINESIA: Journal of Agribusiness*, 5(3), 176-181.
- Makalalag, A., Ilat, V., & Walandouw, S. K. (2023). The Effect of Production Costs, Marketing Costs, and Quality Costs on Net Profit (Study on Food and Beverage Sub-Sector Manufacturing Companies Listed on the IDX in 2018-2020). *Jurnal EMBA: Journal of Economic Research, Management, Business, and Accounting*, 11(3), 71-81.
- Naibaho, U. A., Akbar, H., & Hadibrata, B. (2022). Determination of customer satisfaction: Analysis of service quality, price and product quality (literature review of strategic marketing management). *Journal of Educational Management and Social Sciences*, 3(2), 1079-1089.
- Nugroho, A. Y., & Mas'ud, A. A. (2021). Projection of bep, rc ratio and r/l ratio towards business feasibility (case study on bean sprout business in Wonoagung village, Tirtoyudo, Malang Regency). *Journal of cooperatives and management*, 2(01), 26-37.
- Nur, M. I., Herman, A., Sari, I., & Riono, Y. (2025). Training and Mentoring of Coconut Fruit Processing and Potential into White Copra in Simpang Tiga Daratan Village, Enok District. *JANU: Jurnal Abdimas Nusantara*, 2(01), 33-39.
- Nurhayati, N., Dewi, N. Y. S., Azhari, A., Wardi, H. K., Huzair, A., Maesaroh, H., & Ghazali, M. (2023). Introduction Of Purification Technology To Improve The Quality Of Coconut Cooking Oil In The Home Industry. *JMM (Jurnal Masyarakat Mandiri)*, 7(3), 2622-2630.
- Pahambang, Y., & Sirappa, I. P. (2022). Analysis of rice milling business income and nutritional quality of rice bran in Wula Waijelu District, East Sumba Regency. *Sabana Animal Husbandry Journal*, 1(1), 11-18.
- Ramadhan, A., Rahim, R., & Utami, N. N. (2023). *Income Theory (Case Study: Farmers' Income in Medan Krio Village)*. Tahta Media Publisher.
- Romdona, S., Junista, S. S., & Gunawan, A. (2025). Data Collection Techniques: Observation, Interview And Questionnaire. *Jisosepol: Journal of Social, Economic and Political Sciences*, 3(1), 39-47.
- Riono, S. B., Nurizki, M., Dumadi, D., Syaifulloh, M., & Sucipto, H. (2023). The Influence of Business Capital and Marketing Strategy on Sales Volume of UMKM Actors Mitra Mandiri Brebes. *Ecobuss Scientific Journal*, 11(1), 1-8.
- Saina, A. S. A., Suryati, S., Sulhatun, S., Jalaluddin, J., & M., & Meriatna, M. (2023). Method of making coconut oil () with variations of crude bromelain enzyme and crude papain enzyme. *Chemical Engineering Journal Storage (CEJS)*, 3(3), 362-375.
- Sardianti, A. L., Dunda, T., & Hidayah, W. (2023). Cost Analysis of Clove Production Cost Analysis in Botumoito District, Boalemo Regency. *Journal Of Agritech Science (JASc)*, 7(01), 103-110.
- Safarudin, R., Zulfamanna, Z., Kustati, M., & Sepriyanti, N. (2023). Qualitative research. *Innovative: Journal Of Social Science Research*, 3(2), 9680-9694.
- Yakub, M., & Rahman, A. (2024). The Role of Farmers in Palm Sugar Production in Pasiang Village, Matakali District, Polewali Mandar Regency. *Journal of e-business, Muhammadiyah Institute of Technology and Business, Polewali Mandar*, 4(1), 11-21.