

FINANCIAL ANALYSIS OF THE HOUSEHOLD INDUSTRY'S PALM SUGAR IN LETTA VILLAGE, LEMBANG DISTRICT, PINRANG CITY

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ABSTRACT

One of the most appropriate efforts in economic empowerment is to develop economic activities that become the basis of the economic life of all people and are able to accommodate existing human resources. Financial analysis aims to assess whether a particular activity being carried out is financially feasible, or can provide financial benefits for the business which aims to maximize profits. This research aims to determine the financial feasibility of home industry palm sugar in Letta Village, Lembang District, Pinrang Regency by calculating the Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), and Profitability Index (PI). This type of research is quantitative research with survey methods. The sample in this research was 1 palm sugar craftsman in Letta Village, Lembang District, Pinrang Regency with a sampling technique, namely using a Purposive Sampling technique or deliberately using certain criteria. The data analysis technique used is feasibility analysis. The results of the research show that the home industry palm sugar business in Letta Village, Lembang District, Pinrang Regency is financially feasible to operate because the Net Present Value (NPV) value is IDR 153,231,875, the Internal Rate of Return (IRR) is 47% with a level of interest rate of 15%, Profitability Index (PI) > 1.00, which is 5.03%, and the Payback Period (PP) obtained in the home industry palm sugar business is 2 months 3 weeks, the time required to return business capital.

Keywords : Business Analysis, Financial Feasibility, Palm Sugar

INTRODUCTION

One of the most appropriate efforts to strengthen the economy is to develop economic activities that form and are able to be the basis of the economic life of existing human resources. The development of small enterprises (small industries and domestic industries) is one of the activities that develop economic activity that is expected to improve the well-being of rural people [1]. Palm sugar is one of the most economically valuable crops, is so promising in its development, and has huge potential to boost the region's economy [2].

The purpose of financial analysis is to assess whether a particular action can bring financial benefits to a company aimed at maximizing profits. Because when making a decision based on an assessment of the profitability of an activity, it is essential to consider all the costs and benefits associated with and/or actually obtained from the implementation of the activity [3]. The Directorate-General of Agriculture (Ditjenbun) stated that by 2020, the extent of sugar production in Pinrang district will be 10 hectares of unproduced crops, 315 hectares of unproductive or damaged plantations, 393 ha of people's gardens, 176 tons of production, and 559 kg/ha of productivity. The sugar industry in Pinrang district has a total of 362 head of family [4].

In 2023, the Central Statistical Agency of Pinrang district stated that the area and production of plantation plants according to the type of plant in Lembang district in 2020 were 194 ha, with a total production of 75.20 kg, while in 2021 the area of production and plantation of plants were 194 ha with a production of 99 kg. The village of Letta is situated in the high plains, where the western and southern sides are the plains and plantations, and the northern side are the protected forest and plantation areas. The village of Letta has a subtropical climate, which is an area with cold weather both night and day. The village of Letta has two seasons: the rainy season and the rainy season. The income of the population comes from agriculture and farming, seeing the fertile natural conditions and sufficient rainfall. Letta is an asset that can produce various yields of land that can increase investment in the area, and also, with the character of the hard-working society and the inherent strength of cutting-edge technology, it has the potential to drive the economic growth of the community in the village.

The village of Letta has natural resources such as rice, coffee, cengkeh, kemiri, and sugar aren, and the dominant jobs of the Letta village people are farmers, gardeners, and livestock farmers. The village of Letta, as one of the centers of sugar production, has never been studied before to analyze the financial viability of the sugar industry and to find out whether the development of such an enterprise is profitable or not. The financial analysis aims to give the sugar businessman an idea of the added value generated by the company. To fully determine whether a business is eligible or not, eligibility criteria such as payback period (PP), net worth (NPV), internal rate of return (IRR), and profitability index (PI) can be used [5]. The aim of the research is to find out the viability of the sugar business and the household industry from its financial aspects by calculating the net present value (NPV), internal rate of return (IRR), payback period (PP), and profitability index (PI).

RESEARCH METHOD

Research Location

The study was conducted in March–June 2023 in Letta Village, Lembang district, Pinrang City. This type of research is quantitative research with survey methods. The sample in this research is a sugar craftsman in the village of Letta, Lembang district of Pinrang, with the sampling technique of purposeful sampling or deliberately using certain criteria. The data sources used are primary data and secondary data.

Data Analysis Techniques

The data analysis techniques used in this study are business analysis and financial viability analysis, i.e., financial aspects by calculating net present value (NPV), internal rate of return (IRR), payback period (PP), and profit index (PI) :

1. Business Analysis

Business is the analysis that seeks and coordinates the factors of production, like capital, in order to generate the greatest profit [6].

Production Cost Analysis

The analysis of the total cost of production is calculated according to the formula according to [7] as follows :

$$TC = VC + FC$$

Description:

TC = Total Cost

VC = Variabel Cost

FC = Fixed Cost

Revenue Analysis

The profit formula can be written as follows :

$$TR = Q.P$$

Description:

TR = Total Revenue

Q = Quantity

P = Price

Income Analysis

The income formula can be written as follows :

$$\pi = TR-TC$$

Description :

π = Income

TR = Total Revenue

TC = Total Cost

2. Financial Qualification Analysis

Based on [8], one perspective that can be considered in a feasibility study is the financial aspect. By analyzing the financial aspects of the project from the perspective of the company or person who invests in the project.

Net Present Value (NPV)

Net present value can be understood as the current value of the income flow generated by an investment with the following formula [9].

$$NPV = \sum_{t=0}^n \frac{B_t - C_t}{(1+i)^t}$$

Description :

B_t = profit in the years to-t

C_t = Cost in the years to-t

i = Usage Level

t = Years to-t

Internal Rate of Return (IRR)

Internal Rate of Return (IRR) The IRR is the maximum rate of return that may return the costs planted with the formula according to [9].

$$IRR - i_1 + \frac{NPV_1}{NPV_1 - NPV_2} \times (i_2 - i_1)$$

Description :

i_1 = Favorable interest rates. NPV positive

i_2 = Favorable interest rates. NPV negative

NPV_1 = Positive NPV

NPV₂ = Negative NPV

Payback Period (PP)

The return timeframe is the length of time the cash flow takes to cover the investment cost. [9], by using a formula :

$$PP = \frac{I}{Ab} \times 1 \text{ year}$$

Description :

I = Investment Value

Ab = Discounted net cash inflow

Profitability index (PI)

A profitability index is a comparison of the present value of future net cash income and the current value of the investments made.

$$PI = \frac{PV \text{ net cash amount}}{PV \text{ investment amount}} \times 100\%$$

The eligibility criterion is that if $PI > 1$, then the investment is worthy. On the contrary, if $PI < 1$, then the investment is not worth it [10].

RESULT AND DISCUSSION

Analysis of the Cost of Processing Sugar Aren in Letta Village, Lembang District, Pinrang District.

1. Fixed Cost

A fixed cost is the cost of sugar craftsmen that does not affect production [11]. The fixed cost of the sugar aren enterprise includes the cost of equipment and construction. Fixed fees are shown in the table below:

Table 1. Fixed Cost of Sugar Aren Efforts During Production (1 Year).

Equipment Type	Unit	Price(Rp/unit)	Total	Shrinkage value (5%)	12 Months
Tool Equipment Cost					
1. Wok	1	100.000	100.000	5.000	60.000
2. Bucket	2	25.000	50.000	2.500	30.000
3. Filter	1	25.000	25.000	1.250	15.000
4. Machete	2	50.000	100.000	5.000	60.000
5. Grindstone	1	70.000	70.000	3.500	42.000
6. Ladle	1	7.000	7.000	350	4.200
7. Jerry Cans	10	-	-	-	-
8. Bucket of water	1	-	-	-	-
9. Hammer	1	-	-	-	-
10. Insert the pan	1	-	-	-	-
11. Mold	36	-	-	-	-
Building Costs		455.000		22.750	273.000
Total					484.200

Source: Processed Data, 2023

Based on Table 1 above, it can be known that the use of fixed costs for processing sugar by enterprises in the village of Letta consists of building costs and equipment costs. By making a narrowing of tools to generate building costs of Rp 273,000 and Rp 211,200 for equipment

costs. So it generates a fixed cost that has been carried out reduction of the device that is in total is Rp 484.200. It is in accordance with the opinion [12] The fixed cost is the cost of the industry, which is not exhausted in a period of production. The greatness of the small cost of production is not influenced by the amount of production produced.

2. Variable Cost

A variable cost is the cost that affects the production of sugar ore [13]. The variable cost issued by sugar craftsmen in Letta Village is shown in the table below:

Table 2. Variable Cost of Sugar Aren Entrepreneurship During the Production Period (1 Year).

No.	Description	Cost (Rp/ Week)
1.	Supporting Material	480.000
2.	Fuel	144.000
3.	Packaging	600.000
4.	Transportation	5.400.000
Total		6.624.000

Source: Processed Data, 2023

Based on the above table, it can be seen that the variable cost of sugar is Rp 6.624.000, which covers support costs, fuel costs, packaging costs, and transportation costs. Supporting material costs are the costs issued by the sugar aren artisans in the purchase of coconut, which are used by the artisans when doing the process of producing sugar aren so that during the cooking process, nira aren does not overflow out. Supportive material is coconut, which is bought for Rs 10,000 each week. The cost of the fuel used by the craftsmen in the process of processing sugar is wood. The purchase of wood is obtained not through the purchase but by searching for wood in the forest. So the cost that is counted in the fuel cost is only the cost of buying cork and petroleum as fuel. Packaging costs are the costs that are issued by sugar craftsmen when buying plastic as a container or place used by consumers when buying sugar. As the transportation used by the craftsmen in the morning and afternoon when taking nira. The transportation cost becomes one of the variable costs because it is the cost that continues to be spent by the artisans in the process of sugar cane production. It's in line with the opinion [13]. That variable cost is the cost that is routinely spent on every large production effort, depending on the quantity that is to be produced.

3. Total Cost

Total cost is the sum of fixed costs and variable costs [14]. The total cost is shown in the table below:

Table 3. Total Sugar Enterprise Costs During the Production Period (1 Year)

No.	Cost Description	Cost (Rp)
1.	Fixed Cost	484.200
2.	Variable Cost	6.624.000
Total		7.108.200

Source: Processed Data, 2023

Based on the above table, it can be known that the total total production costs seen from the fixed costs (buildings and equipment costs) that have been carried out reduction of tools and variable costs (support materials, fuel, packaging, and transportation) during 1 year

production of processing sugar aren enterprises in Letta district of Lembang district Pinrang is of Rp 7.108.200. If the total income of sugar craftsmen in Leta district Lembang during the production period is Rp 35.731.800 and it only takes 3 months and 1 week to return the capital used, then the total business cost of Rp 7.108,200 used belongs to small. It's in line with the opinion [14] that the total cost is the total amount of enterprise capital consisting of fixed costs and variable costs.

4. Revenue Analysis

Acceptance is the output of the production of palm sugar multiplied by the sale price of the palm sugar [15]. Total income is shown in the table below:

Table 4. Total Palm Sugar Enterprise Revenue During the Production Period (1 Year)

No.	Uraian	Biaya
1.	Jumlah Produksi(Kg)	2.520
2.	Harga/ 1 Kg(Rp)	17.000
Jumlah		42.840.000

Source : Processed Data, 2023

Based on the results of the above table, the receipts obtained by the craftsmen during the 1-year period of sugar production are in the Letta village of Lembang district of Pinrang, where the price applicable at the time of the research was Rs 17,000 per kg. The receipt from the processing of the sugar industry in the Letta district is Rs 42.840,000 in 1 year, where the output of production is 2520 kg in times of the selling price of Rs 17.000. It's in line with the opinion [11] revenue analysis serves to measure the success of an enterprise, determine the main component of revenue and whether it can still be increased or not, and calculate the value of the production of the enterprise over a certain period of time at the sale price.

5. Income Analysis

The turnover is the difference between the total income and the total cost of the business [16]. Total income from sugar aren is shown in the table below :

Table 5. Total Sugar Aren Enterprise Revenue During the Production Period (1 Year)

No.	Description	Cost (Rp)
1.	Revenue	42.840.000
2.	Total Cost	7.108.200
Income		35.731.800

Source : Processed Data, 2023

Based on Table 5 above, it appears that sugar processing enterprises were in the village of Letta during the production period (1 year) that is, the total receipts processed by the craftsman is Rp 42.840,000 in (1 year) with the total expenditure of Rp 7.108.200 so that the total income received by the sugar craftsmen from the difference between the receipt and the total cost is Rp 35.731.800 in (1 year).

Financial Analysis of Sugar Aren Enterprises in Letta Village, Lembang District, Pinrang.

1. Net Present Value

The net present value is defined as the current value of the income flow generated by the investment.

Table 6. Calculation of the NPV of The Sugar Industry

Year	Benefit (Rp)	DF 15%	PV (Rp)
1	35,731,800	0.8696	31,071,130
2	35,731,800	0.7561	27,018,374
3	35,731,800	0.6575	23,494,239
4	35,731,800	0.5718	20,429,773
5	35,731,800	0.4972	17,765,020
6	35,731,800	0.4323	15,447,843
7	35,731,800	0.3759	13,432,907
8	35,731,800	0.3269	11,680,789
Pv from cashflow			160,340,075
PV from net investment			7,108,200
Net Present Value			153,231,875

Source : Processed Data, 2023

Based on the above table, it can be known that the NPV of the processing of the palm sugar enterprise in the village of Letta is Rp 153.231.875. Because of the Rp 153.231,875 > 0, this sugar arena enterprise can be said to be financially worthy of being implemented. According to [10], the NPV assessment criterion is that if NPV > 0, then the investment is accepted; otherwise, if NPV < 0, then the investment is rejected. Based on previous research [17], an NPV value of 125.133.98 with a 10% discount factor based on the financial analysis of eligible ventures was developed. So from the comparison of previous research, the sugar aren business in the village of Letta in Lembang district Pinrang is worthy of being developed financially.

2. Internal Rate of Return

The internal return rate is the return rate of the company on the invested capital.

$$IRR = i1 + \frac{NPV1}{NPV1 - NPV2} \times (i2 - i1)$$

$$IRR = 0,15 + \frac{153.231.875}{153.231.875 - 130.000.427} \times (0,2 - 0,15)$$

$$IRR = 47\%$$

It can be seen that the value of NPV1 is 153.231.875 and NPV2 is 130.000.427, so the result of the calculation of the IRR is 47%. Where 47% is greater than the rate of interest used, which is 15%, it can be concluded that the sugar cane business in the village of Letta is financially worthy of being carried out. According to [18], the eligibility criteria are that when the IRR > return stream (i) is desired, the project is accepted, but when the IRR < desired return stream (i), the project is rejected. In the study [18], if the IRR on enterprise development is greater than the discount factor used of 6%, then the enterprise deserves to be developed. Based on comparisons with previous research, the research on sugar aren enterprises in Letta village of Lembang district Pinrang deserves to be developed.

3. Payback Period

A payback period is a period that is needed to measure how quickly the return on investment is required in a business (Khotimah and Sutiono, 2014).

$$PP = \frac{\text{Investment}}{\text{Net Cash}} \times 1 \text{ Year}$$

$$PP = \frac{7.108.200}{35.731.800} \times 1 \text{ Year}$$

$$PP = 2,3$$

Based on the calculation of the payback period it can be known that the capital return time of the sugar aren enterprise is 2 months 3 weeks. It's in line with the opinion [18] In the payback period, the investment plan is said to be worthwhile if $k < n$ and vice versa. Where K is the sum of the return period and n is the life of the investment. Comparison to research [17] the payback period obtained is 2 years, 8 months, and 8 days, which is shorter than the project's age of 3 years. So from the comparison of the research, the sugar industry in the village of Letta Lembang, district Pinrang, is worth developing because it only takes 2-3 weeks to return the capital of the enterprise.

4. Profitability Index

A probability index is a comparison between the present value of the expected future net cash flow and the current value of an investment that has been made.

$$PI = \frac{\text{Net Cash PV Amount}}{\text{Investment PV Amount}} \times 100\%$$

$$PI = \frac{35.731.800}{7.108.200} \times 100\%$$

$$PI = 5,03\%$$

From the above calculations, the profitability index is 5.03%, which indicates that this effort is worthwhile. It's in line with the opinion [10] the criterion for the profitability index is that a project is considered eligible if $PI > \text{or equals } 1,00$; otherwise, it is not assessed if $PI < 1,00$. Based on research [10]. The profitability index is 4.2 if $PI > 1,00$. So from the comparison of the research on the sugar industry in Letta district of Lembang, Pinrang district is worthy of being carried out because the PI value is $5.03\% > 1.00$.

CONCLUSION

Based on the results of the research on the eligibility analysis of the sugar processing enterprise in the household industry in Letta district of Pinrang district, it is said that it is worthy to be carried out. This is seen from the consideration of the feasibility of the enterprise that can be implemented, as seen by the criteria that are produced, namely, the net present value (NPV) has a positive value of Rs. 153.231.875, an internal return rate (IRR) of 47% indicates a higher return rate than interest, a payback period (PP) of 2.3 months or 3 weeks, and a profitability index (PI) of 5.03% indicates that the undertaking deserves implementation. Based on the conclusion, the researchers suggested to the sugar craftsmen that if they continue to increase the production of sugar aren, then the production activities should be carried out well and correctly, and the craftsman should know and account for the costs of production of his enterprise so that the financial costs are more directed and able to cultivate aren trees so that aren can be used in the future.

REFERENCES

- (1) Asyuzal, E. dan S. (2020). Analisis valuasi ekonomi investasi perkebunan kelapa sawit di provinsi jambi (studi kasus perkebunan kelapa sawit Pt Xyz). *Jurnal Pembangunan Berkelanjutan*, 3(1), 54–63. <https://doi.org/10.22437/jpb.v2i2.9547>
- (2) Badan Pusat Statistik Kabupaten Pinrang (2023). Kecamatan Lembang Dalam Angka 2021-2022. <https://pinrangkab.bps.go.id/publication/2021/09/24/f1819ab3370f4177c1ae538d/kecamatan-lembang-dalam-angka-2021.html>
- (3) Br. Simbolon, J., Sinaga, R. E., Sitepu, J., & Sinaga, D. E. (2022). Strategi pemasaran dan pengolahan gula aren di desa buluh awar sumatera utara. *Jurnal Agroteknosains*, 6(1), 33. <https://doi.org/10.36764/ja.v6i1.690>
- (4) Direktorat Jenderal Perkebunan. (2020). Statistik perkebunan non unggulan nasional 2020-2022. In *Sekretariat Direktorat Jenderal Perkebunan* (Vol. 5, Issue 3).
- (5) Efendi, R. T. Y. Y. (2021). Analisis studi kelayakan pengembangan usaha kopi dangau datuk petik merah kota bengkulu. *Jurnal Aktual*, 19(2), 173–180. <http://www.ufrgs.br/actavet/31-1/artigo552.pdf>
- (6) Fitriani, H. (2012). Analisa kelayakan finansial pasar tradisional modern plaju palembang. *Jurnal Rekayasa Sriwijaya*, 19(1), 1–6.
- (7) Giovani, G., & Purwohandoyo, J. (2016). Pengaruh industri gula aren terhadap tingkat kesejahteraan rumah tangga pemilik industri di kecamatan sobang, kabupaten lebak. *Gastronomía Ecuatoriana y Turismo Local.*, 1(69), 5–24.
- (8) Ibnu Sajari, Elfiana, M. (2017). Analisis kelayakan usaha keripik pada ud. mawar di gampong batee ie liek kecamatan samalanga kabupaten bireuen. *Jurnal S. Pertanian*, 1(2), 116–124.
- (9) Kamisi, H. La. (2011). Analisis usaha dan nilai tambah agroindustri kerupuk singkong. *Agrikan: Jurnal Agribisnis Perikanan*, 4(2), 82–87. <https://doi.org/10.29239/j.agrikan.4.2.82-87>
- (10) Khotimah, H., & Sutiono. (2014). Analisis Kelayakan Finansial Usaha Budidaya Bambu. *Jurnal Ilmu Kehutanan*, 8(1), 14–24.
- (11) Kusuma, P. T. W. . (2012). Analisis kelayakan finansial pengembangan usaha kecil menengah (ukm) nata de coco di sumedang, jawa barat. *Jurnal Inovasi Dan Kewirausahaan*, 1(2), 113–120.
- (12) Lakamisi, H., & Usman, R. (2016). Analisis finansial dan strategi pengembangan usaha kecil menengah (UKM) kacang vernis. *Agrikan: Jurnal Agribisnis Perikanan*, 9(2), 57–65. <https://doi.org/10.29239/j.agrikan.9.2.57-65>
- (13) Mardesci, H., Santosa, S., Nazir, N., & Hadiguna, R. A. (2017). Analisis kelayakan finansial industri kecil gula kelapa (studi kasus di kecamatan kempas, kabupaten indragiri hilir, riau). *Jurnal Teknologi Pertanian*, 6(1), 19–25. <https://doi.org/10.32520/jtp.v6i1.98>
- (14) Normansyah, D., Rochaeni, S., & Humaerah, A. D. (2014). Analisis pendapatan usahatani sayuran di kelompok tani jaya, desa ciaruteun ilir, kecamatan cibungbulang, kabupaten bogor. *Agribusiness Journal*, 8(1), 29–44. <https://doi.org/10.15408/aj.v8i1.5127>

- (15) Qomaruddin, M. (2021). Analisis kelayakan investasi dengan pendekatan aspek financial dan strategi pemasaran pada program ayam petelur di bum desa bumi makmur. 25(2), 318–325. <https://doi.org/10.46984/sebatik.v25i2.1633>
- (16) Rachadian, F. M., Agassi, E. A., & Sutopo, W. (2013). Analisis kelayakan investasi penambahan mesin frais baru pada CV. XYZ. *J@Ti Undip : Jurnal Teknik Industri*, 8(1), 15–20. <https://doi.org/10.12777/jati.8.1.15-20>
- (17) Rosmala, I., Noor, T. I., & Insyanto, A. Y. (2022). Analisis kelayakan finansial agroindustri gula kelapa (suatu kasus di desa sidomulyo kecamatan pangandaran kabupaten pangandaran). *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, 9, 257–264.
- (18) Sopiannur, D., Mariati, R., & Juraemi, D. (2011). Studi pendapatan usaha gula aren ditinjau dari jenis bahan bakar di dusun girirejo kelurahan lempake kecamatan samarinda utara (study income of palm sugar reviewed fuel at girirejo village lempake sub district samarinda utara). In *EPP* (Vol. 8, Issue 2).