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The Financial and Economic Feasibility Analysis: A Value-Added Approach

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Abstract

The author introduces value-added analysis as a novel analytical method for assessing the financial and economic feasibility of business activity to broaden knowledge. Using the value-added analysis method in the feasibility analysis is based on the presence of elements of revenue and consumable costs in the calculation of added value without considering the amount or wages and profits. So, if the added value exceeds the labor wages, the entrepreneur makes a profit. Through a case study in tobacco farming, the author demonstrates that the value-added approach can be used to analyze financial and economic feasibility and is equipped with ready-to-use applications. The research was carried out on 30 Kasturi tobacco farming units spread across three sub-districts in the West Lombok Regency, namely Sekotong, Sheet, and Gerung District, from May to July 2022. The financial feasibility analysis results show that the added value of musk tobacco farming is Rp. 33,820,555/llg, which is greater than the labor wage of Rp. 20,800,800/llg, while the economic feasibility analysis result shows that the added value of musk tobacco farming is Rp. 25,656,000/ha, so musk tobacco farming is feasible. The feasibility analysis results using the added value approach are consistent with the B/C ratios analysis, greater than 1.06, e.g., 1.5175, and 1.7619.

Keywords: *Financial Feasibility, Economic Feasibility, Value-Added Analysis, Kasturi Tobacco.*

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INTRODUCTION

Over the past ten years, the global production of tobacco has decreased. The production of tobacco fell from 6.98 million tons in 2010 to 5.89 million tons in 2020, a decrease of 15.62% [1]. In the last ten years, tobacco production has increased in developing nations like India, Zimbabwe, Indonesia, Mozambique, and Pakistan while decreasing in developed nations like China, the United States, Brazil, and Argentina.

The amount of tobacco produced in Indonesia in 2010 was 0.14 million tons, and in 2020 it was 0.20 million tons, an increase of 42.86%, or 4.29% per year over the previous ten years [1]. Three provinces, East Java, West Nusa Tenggara (NTB), and Central Java, produce most of the country's tobacco. The last five years have seen an average of 91.78% of Indonesia's tobacco production coming from the three provinces [2]. Even though domestic tobacco production keeps rising, Indonesian imports of tobacco also keep rising year after year [3]. In 2020, Indonesia imported 0.11 million tons of tobacco, an increase of 6.17% per year on average over the previous ten years [4].

The increase in tobacco production and imports suggests that Indonesia's need for and consumption of tobacco are both growing [3]. The World Bank claims that Indonesia's high tobacco consumption is because of the country's low tobacco product prices, and Indonesia is a nation in the Asia-Pacific region with the lowest tobacco product prices [5]. The low cost of tobacco products will undoubtedly affect tobacco prices, which will ultimately affect the added value received by farming households. According to the findings of a study conducted by [6] in 2022, tobacco farmers in North Bengal, India, suffered significant losses because of the low selling price of tobacco brought on by the large amount of illegal tobacco that was able to enter the Indian market. The findings of a study conducted in Bangladesh by [7] revealed that other crops are more profitable for farmers than tobacco plants.

Institutions like the World Bank and several university researchers have also researched tobacco farmers in Indonesia. Most farmers do not find tobacco farming to be profitable, according to the findings of a World Bank study of farming households and former tobacco farmers in Indonesia's three main tobacco-producing provinces, Central Java, East Java, and West Nusa Tenggara. Farmers still grow tobacco because they think it is a crop that is worth cultivating, even though they only receive low gross margins and occasionally even lose money [8]. Similarly, the findings of research carried out by [10] in two provinces, namely East Java and NTB, revealed that the cheaper price of imported tobacco had a detrimental effect on domestic farmers, making tobacco farmers poor. The cigarette factories refused to purchase tobacco from the tobacco farmers because their tobacco warehouses were already stocked with imported tobacco when the farmers were about to sell their products. So, they compelled tobacco farmers to offer low prices to collectors, who act as intermediaries. The tobacco trade chain is long because of the intermediaries present, which makes the farmers receive a cheap price.

Because tobacco farming has relatively high production costs between IDR50 million and IDR60 million, the issue of relatively low tobacco prices makes it difficult for farmers to cover their farming expenses [11]. Select auxiliary crops like peanuts and corn. The costs of growing corn and peanuts range from IDR 20 million to IDR 30 million. Farmers will reconsider their choice of tobacco plants. Firstly, besides the relatively high costs, it is also challenging to locate skilled labor.

Through the Regional Planning and Development Agency of West Lombok Regency, the West Lombok Regency Government intends to establish a Tobacco Products Industry Center, specializing in the kind of Kasturi tobacco that has been shown to have comparative advantages over Kasturi tobacco produced in East Java and has a competitive advantage in terms of quality and price at the industrial level of tobacco products. For instance, the cost of musk tobacco produced in West Lombok is twice as expensive as that of musk tobacco produced in Jember and Madura [12].

Although the quality of musk tobacco produced by farmers in West Lombok is superior, because of the relatively high production costs, it is necessary to study the financial feasibility of musk tobacco farming so that it becomes a material consideration for farmers cultivating musk tobacco plants, as well as a material consideration for the government. In assessing the feasibility of a business, Net Present Value (NPV), Internal Rate of Return (IRR), Gross B/C, and Net B/C are appropriate to use in industry or annual crop farming, while R/C is used in seasonal crop farming [13].In this study, the researcher initiated the use of added value as a feasibility analysis approach by comparing it to labor wages, and developed applications that could be useful in determining the feasibility of all types of businesses, including farming, industrial, and trading businesses.

The study aims to obtain the results of a financial and economic feasibility analysis of musk tobacco farming using a value-added analysis approach.

LITERATURE REVIEW

In the 2000s, there was a strong desire to start a new business. According to the findings of a 2005 survey conducted by Yahoo and Harris Interactive in the United States, only one out of every four people surveyed has not considered starting a business activity [14], but the success rate of a new business is still low. In the United States, approximately one-third of all new ventures fail within the first two years of operation, with a significant percentage failing within the fourth year. Many factors contribute to the failure of new businesses, including the failure to conduct a feasibility analysis when starting a business [15]. If someone has a business idea, the next step is to perform a feasibility analysis so that they can determine whether the business idea is workable or not. In this way, he avoids running out of time, money, energy, or resources for a venture that is founded on a

flawed idea and fails. But performing a feasibility analysis does not ensure a business will succeed [16].

A feasibility analysis, according to [14], comprises four areas: product/service feasibility, industry/market feasibility, organizational feasibility, and financial feasibility, while [16] states that a feasibility analysis comprises three components: industry and market feasibility analysis, product or service feasibility analysis, and financial feasibility analysis. The three components of the feasibility analysis are interrelated, as shown in Figure 1:

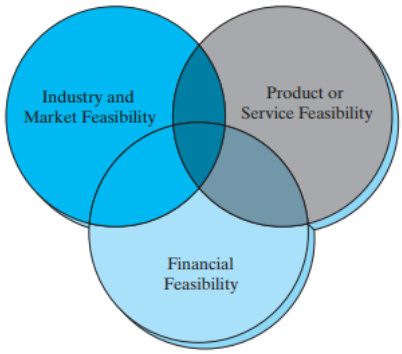

Figure 1. Components of Feasibility Analysis.
Source: Scarborough (2012)

A software called "Business Feasibility Plan Pro" has been developed to conduct a feasibility analysis of the three feasibility components [16]. But, to use this software, users must pay; so, to make it easier for prospective entrepreneurs, the researchers took the initiative to provide free applications for financial and economic analysis.

According to Scarborough, the major elements used in financial analysis are the amount of initial capital required, the estimated amount of income, and the resulting rate of return on investment [16]. According to [14], the most important consideration in conducting financial analysis is the amount of initial capital required and the rate of return on capital. According to [15], the focus of financial analysis is on the resources needed as initial costs, estimated potential costs and revenues, and the amount of capital required to cover losses until the break-even point is reached. Initial capital is used to buy capital goods and operating costs. Return on assets, equity, and sales measures the rate of return on capital. Examining the opinions of the three authors reveals that none of them advocate using added value as a method for conducting financial and economic feasibility analyses.

Several researchers have used value-added to conduct benefit/cost analysis for public-sector investments, such as irrigation canal construction [16]. Using value-added for benefit/cost analysis has been the focus of attention in several articles in the regional economic literature; but, using an added value for feasibility analysis has not been considered important, while in reality, the use of added value in the calculation of national income or gross regional domestic product, which is the sum of natural resource rent, labor wages, capital interest,

and company profits, is always used [1]. So, it would be appropriate to use the added value as a financial and economic feasibility analysis.

METHOD

We conducted the study in the heart of tobacco plantations in three sub-districts of the West Lombok Regency: Gerung, Sheet, and Sekotong District. We collected data between May and July 2022.

We collected data through farm observation techniques [18], surveys, and in-depth interviews with farmers [19]. Plant spacing, plant population, number of leaves, leaf weight, and weight of tobacco products were all measured to make observations [20]. We conducted the survey using a question-and-answer technique about the characteristics of the respondent farmers, farming activities such as land cultivation, seeding, plant maintenance, harvest and post-harvest handling, and in-depth interviews on the needs of fixed and variable costs such as the use and costs of production facilities, use and labor costs, production and production value. So, we used triangulation in data collection, with observations, surveys, and in-depth interviews [21].

While qualitative data are described in narrative sentences, we organize quantitative data in tables using descriptive statistical analysis techniques. Using the added value approach, the data on production value, consumable material cost, and overhead cost were examined for both financial and economic feasibility. The results of the value-added approach's financial feasibility analysis are compared with those of the B/C Ratio approach's financial feasibility analysis.

Financial Feasibility Analysis Using Value-added Approach:

$$\Sigma NTk = \Sigma NPk - \Sigma BBHk - \Sigma BOHk \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

$$\Sigma NPk = \Sigma Hk.Qk \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$\Sigma NTk = \Sigma UTk + \Sigma LUk \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Information:

NT = total value added
NP = total production value
H = price per unit of production
Q = production quantity
BBH = cost of consumables
BOH = Overhead charge
NT = Average value added = $\frac{\Sigma NTk}{n}$
UT = Average wage of labor = $\frac{\Sigma UTk}{n}$
LU = Average operating profit = $\frac{\Sigma LUk}{n}$
k = k-th business unit
n = amount of business unit

Eligibility Criteria:

If NT > UT ➔, the business is declared feasible
If NT UT ➔ the business is declared unfit

The eligibility criteria for the value-added formulation are compared with the eligibility criteria using the B/C ratio as follows:

Gross B/C ratio = ΣNP/ΣTB = NP/TB ..... (4)

ΣNPk = ΣHk.Qk ..... (5)

ΣTBk = ΣBBHk + ΣBOHk +ΣUTKk ..... (6)

Information:

ΣNP = total production value per business unit

NP = average production value per business unit = $\frac{\Sigma NP}{n}$

TB = average production cost = $\frac{\Sigma TBk}{n}$

Hk = price per unit of product in business unit

Qk = production quantity per business unit

ΣTB = total cost of production

ΣBBH = total cost of consumables

ΣBOH = total overhead cost

ΣUTK = total wage of labor

i = credit interest (interest)

Eligibility Criteria

If Gross B/C Ratio > 1+i, ➔farming is declared feasible

If Gross B/C Ratio 1+i ➔farming is declared unfeasible

RESULTS AND DISCUSSION

Crop Population and Tobacco Production

Kasturi tobacco is a plantation crop grown in paddy fields during the dry season. In Indonesia, the dry season lasts from April to October every year, except when Elnino occurs, when the dry season is relatively short from May to August every year. The dry season is characterized by low rainfall compared to the rainy season [22].

The row legowo planting technique was used to plant Kasturi tobacco at a distance of 60 x 80 x 120 cm. Tobacco plant populations range from 15,600 to 16,500 trees per hectare, with a median value of 16,050 trees per hectare. The number of leaves on a tree can range from 11 to 22.

With an average of 17 leaves per tree, the average leaf production per hectare is 272,850 leaves. A study conducted by [23] found that spacing of 90 x 40 cm, 90 x 50 cm, and 90 x 60 cm affects production quality and quantity. According to the agro-climatic conditions in the West Lombok Regency, spacing using the jajar legowo technique of 60 x 80 x 120 cm is an appropriate technology.

Because each dry tobacco roll requires 171 leaves, the total tobacco production per hectare is 1,595.61 rolls. Tobacco production is 780.22 kg per hectare if the weight of one roll of tobacco ranges from 0.375 to 0.603 kg, or an average of 0.489 kg. With an average of 17 leaves per tree, the average leaf production per hectare is 272,850 leaves. A study conducted by [23] found that spacing of 90 x 40 cm, 90 x 50 cm, and 90 x 60 cm affects production quality and quantity. According to the agro-climatic conditions in the West Lombok Regency, spacing using the jajar legowo technique of 60 x 80 x 120 cm is an appropriate technology.

Because each dry tobacco roll requires 171 leaves, the total tobacco production per hectare is 1,595.61 rolls. Tobacco production is

780.22 kg per hectare if the weight of one roll of tobacco ranges from 0.375 to 0.603 kg, or an average of 0.489 kg. Tobacco production based on observations is consistent with the findings of surveys and in-depth interviews, as shown in Table 2.

Farming Land Area

Tobacco farming land in the West Lombok Regency is relatively small, ranging from 0.10 to 1.50 hectares per farming unit. The relatively small farming area is nearly identical to that of other areas, such as Madura [24]. The average farming area is 0.6586 ha, or less than one hectare (Table 1). Because farmland is relatively scarce, production costs per unit are high. The tobacco plantation land area is related to agricultural land ownership and land use allocation for food crops.

Table 1. Average Tobacco Farming Land Area in 2022.

No	Subdistrict	Area (ha)	Range (ha)
1	Gerung	0.5180	0.10 – 1.00
2	Lembar	0.6278	0.10 – 1.00
3	Sekotong	0.8116	0.43 – 1.50
	Amount	**0.6586**	**0.10 – 1.50**

Source: Primary Data Processed in 2022

While population density is related to land ownership [25]. The area of land ownership and farming land appears to be narrower in the Gerung sub-district, which has a high population density, than in the Sekotong sub-district, which has a low population density.

Production and Production Value

The production of chopped musk tobacco ranged from 758.38 kg/ha to 802.13 kg/ha. The average production is 780.22 kg/ha. Because the average farm area is 0.6586 ha, the production per arable area is 513.85 kg/llg (Table 2).

The average price of musk tobacco is IDR74,300/kg, which is higher than the price of East Java musk tobacco. Kasturi tobacco from Jember Regency costs nearly half the price of Kasturi tobacco from Lombok Island because the quality is superior, particularly because of its unique aroma [3]. Almost all cigarette factories in Java use tobacco from Lombok as a filler in their production process [26].

Table 2 Production and Production Value of Kasturi Tobacco Farming

No	***Description***	Real Value [1] per llg/season	Shadow Value [2] per ha/season
1	Production (kg)	513.85	780.22
2	Price (IDR/kg)	74,300	140,000
3	Production Value (IDR)	38,179,055	109,230,800

Sources: 1. Primary Data; 2. Conversion data

In the financial feasibility analysis, the production value is calculated using market or real prices, while the production value in the economic feasibility analysis is calculated using shadow prices [27]. The

price of tobacco at the Surabaya export port in 2022 is used as a shadow price. In July 2022, the export price of Kasturi tobacco at the Surabaya export port will be around IDR140,000 per kilogram or IDR14,000 per ounce. With prices ranging from IDR2,500 to IDR20,000 per ounce. The price of musk tobacco at the Surabaya export port is US$9.69/kg if the exchange rate is IDR14,445/US$. The price of chopped tobacco is higher than that of Virginia tobacco [28]. Because, the export price of virgin tobacco is around IDR35,000 to IDR45,000 per kg, chopped tobacco farmers can survive in the face of falling tobacco prices.

Production cost

Consumables Cost

To produce chopped tobacco, various consumables such as seeds, fertilizers, pesticides, and herbicides are required (Tables 3, 4, and 5).

Table 3. Average Cost of Production Facilities in Tobacco Farming Kasturi in West Lombok Regency.

No	*Tradeable Input*	Real Value[1] per season		Shadow Value[2] per season	
		Volume (units)	Score (IDR/llg)	Volume (units)	Score (IDR/ha)
1	Seeds (stems)	10,570	975,000	16,050	1,480,000
2	Fertilizer (kg):				
	a. Urea	70	280,000	100	900,000
	b. NPK	260	1,521,000	400	4,800,000
	c. KCl & KNO3	100	345,000	150	2,550,000
	d. SP36, etc.	24	62,400	36	432,000
	e. Green Tonic	1.00	35,000	1.50	27,750
	Total Fertilizer Cost		2,243,400		8,707,750
	Amount		**3,218,400**		**10,189,750**

Sources: 1. Primary Data; 2. Data Conversion

Seeds and fertilizers are critical components of the agricultural production process, including tobacco production [29]. Table 3 shows the cost of seeds and fertilizers. The number of seeds used per hectare is determined by the spacing and cropping system used, as well as the plant population. The seed requirements per hectare range from 15,600 to 16,500 trees. The average seed requirement per hectare is 16,050 trees with a spacing of 60 x 80 x 120 cm and an area that can be planted on 95% of the land area.

Table 4. Average Cost of Pesticides and Herbicides in Tobacco Farming Kasturi in West Lombok Regency.

No	*Description*	Real Value[1]		Shadow Value[2]	
		Volume (units)	**Score (IDR/llg)**	**Volume (units)**	**Score (IDR/ha)**
1	Pesticide:				
	a. Decis	1.80	88.000	1.40	369,600
	b. Matador	1.70	45,000	2.70	688,500

	c. Sevin	1.50	50,000	2.30	460,000
	d. Matindo	1.70	27,000	2.60	650,000
2	Herbicide				
	e. Roundup	5.00	600,000	7.60	1.026.000
Amount (IDR)			**810,000**		**3,194,100**

Sources: 1. Primary Data; 2. Conversion data.

Farmers use different fertilizers than recommended fertilizers because the recommended fertilizers are not available in the market and are more expensive. Farmers use the fertilizers available on the market to reduce production costs. The impact is that the production per hectare from chopped tobacco farming is lower when compared to its production potential, while data from PT Sadhana Arifnusa shows that the potential for tobacco production ranges from 1.7 to 1.8 tons per hectare in Kuripan and Gerung sub-districts, and from 1.2-1.5 tons per hectare in Sheet and Sekotong sub-districts.

Tobacco farming necessitates the use of consumables, such as pesticides and herbicides, besides seeds and fertilizers (Table 4). Pesticides and herbicides are used to control pests and diseases, respectively [30]. Pesticide use is very selective because it disrupts biodiversity, specifically the number of creatures that die because of pesticide use. So, the use of pesticides is strictly limited, except in extreme cases. Farmers mostly use mechanical pest control methods, such as using chopsticks or catching pests by hand.

Roundup herbicide is the most commonly used type of herbicide by farmers, particularly during land clearing; in the future, it will be necessary to prevent herbicide use through outreach activities and/or herbicide prohibition. Similarly, pesticides and herbicides should be replaced with more environmentally friendly pest and weed control methods. Natural enemies are considered more environmentally friendly than pesticides and herbicides for pest control.

Labor Wages

Labor is one of the non-tradable production factors, or it is not traded in international markets [31]. The cost of labor for skilled workers is calculated using real wages based on the amount they receive, while the cost of labor for unskilled workers is calculated using shadow prices. The minimum wage for the province of West Nusa Tenggara [32] serves as a shadow price for labor wages.

We use labor in tobacco cultivation, harvesting, and post-harvest activities. Seeding, tillage, planting, and maintenance are all part of the cultivation process, as is the use of labor in tobacco leaf picking (harvest) and post-harvest activities. Harvesting and post-harvest activities use the most labor, while soil processing activities use the least (Table 5).

Table 5. Average Employment and Wages of Labor in Kasturi Tobacco Farming

No	Description	Real Value[1]		Shadow Value[2]	
		Volume (HKO/llg)	Score (Rp/llg)	Volume (HKO/ha)	Score (Rp/ha)
1	Nursery	63.25	3,162,740	45.77	4,577,000
2	Soil Processing*	21.77	1.582.060	17.34	2,484,000
3	Planting and Maintenance	76.87	3,843,350	60.01	6.001.000
4	Harvest and post-harvest	128.96	12,212,650	125.94	12,594,000
	Amount (Rp)	**290.85**	**20,800,800**	**249.06**	**25,656,000**

*Sources: 1. Primary Data; 2. Data conversion; * and + tractor labor wages*

Information:
HKO = working day people
llg = area of arable land
Rp = rupiah
ha = hectares

The use of real labor is shown in the real cost column, while the shadow cost column only considers the use of labor outside the family, as specified in the shadow price calculation, and the wage for labor is based on the Provincial Minimum Wage (UMP) standard. The minimum wage for the province of NTB in 2022 is IDR 2,207,212 per month, according to the Decree of the Governor of the Province of West Nusa Tenggara (NTB) Number 561-685 dated November 19, 2021. The NTB UMP is determined by the formula for calculating the provincial minimum wage in 2022 and the recommendation for the results of the NTB Provincial Wage Council on November 16, 2021 [31].

Overhead Fee

Gross value added and net value added are the two components of value added. Net value added is defined as gross value added less overhead costs [32]. Overhead costs are deducted from gross value added to obtain net value added. Overhead costs include land rent, land and building taxes, capital interest, irrigation water fees, managers' salaries, and equipment depreciation (Table 6). Land and building taxes are among the real overhead costs borne by farmers, while other costs are social or shadow costs. Table 6 displays the real overhead costs per season and the shadow overhead costs per hectare.

Table 6. Average Over Head Cost of Kasturi Tobacco Farming.

No	***Description***	Real Value[1] (IDR/llg/season)	Shadow Value[2] (IDR/ha/season)
1.	Land lease	0	7,000,000
2.	Land and Building Tax (PBB)	329,300	0
3.	Capital Interest	0	2,956,800
4.	Irrigation Water Fee	0	0
5.	Manager	0	12,000,000
6.	Equipment	0	1,000,000
	Amount	**329,300**	**22,956,800**

Sources: 1. Primary Data; 2. Data Conversion; llg = area of arable land

Tobacco plantation farming is a type of independent farming where the farmers use family-owned resources. So, only land and building taxes are considered when calculating overhead costs, while opportunity costs are used to calculate shadow costs. Land rental costs, capital interest costs, manager salaries, and equipment depreciation are examples of shadow costs (Table 6). Irrigation water fees are not charged because the government pays for maintenance. According to [33], the government bears the cost of maintaining irrigation networks in other areas as well. Table 7 also includes a recapitulation of the cost of consumables and overhead costs.

Table 7. Recapitulation of Consumables Costs in Kasturi Tobacco Farming

No	*Description*	Real Value [1] Rp per lg/season	Shadow Value [2] Rp per ha/season
1.	*Tradable* Material Cost		
	a. Seeds	975,000	1,480,000
	b. Fertilizer	2,243,400	8,709,750
	c. Pesticides and herbicides	810,000	3,194,100
2.	*Overhead* Fee *Non-tradable*	329,300	22,956,800
	Amount	**4,358,500**	**36,340,650**

Sources: 1. Primary Data; 2. Conversion data

Both tradable and non-tradable goods are included in consumables and overhead costs. Non-tradable goods are factors of production and production that are not traded in international trade, while tradable goods are factors of production and production that are traded at home and abroad. In the financial feasibility analysis, production and production factor prices are calculated using real prices, i.e. domestic market prices, while tradable production and production factors are calculated using a shadow price approach, i.e. prices at export ports for production factors produced domestically, and prices at ports of imports in the exporting country [34].

Value-added

The additional value obtained from consumable materials in each activity of the production process to produce goods or services is referred to as value-added [35]. The added value is obtained by multiplying the production value margin by the cost of consumables, which is the sum of labor wages and the entrepreneur's profit (formula 3). Table 8 shows the net added value derived from activities in the Rajang Kasturi tobacco farming production process.

Table 8. Added Value to Kasturi Tobacco Farming.

No	*Description*	Real Value [1] (IDR per lg/season)	Shadow Value [2] (IDR per ha/season)
1	Production Value	38,179,055	109,230,800
2	Consumables Cost and Over Head Cost	4,358,500	36,340,650
3	Added Value	33,820,555	72.890.150

Source: 1. Primary Data 2. Conversion data.

On average, the real value added per farm area is less than half of the added value obtained by calculating the shadow price. According to the data in Table 8, tobacco farming contributes to the creation of added value, job opportunities, and the improvement of the regional economy, as well as having a positive impact on increasing the rotation of the regional economy and playing a role in improving people's welfare. This is supported by the findings of an analysis of the ratio of Added Value to worker wages (Table 9).

Financial Feasibility and Economic Feasibility Value-added Approach

So far, the formulas of Net B/C ratio and Gross B/C ratio have been widely used in the financial and economic feasibility analysis. The author provides a financial and economic feasibility analysis using a reconstructed formulation of the value-added formula, namely the added value equals labor wages plus business unit profit (formula 3). Tables 8 and 9 demonstrate the value-added analysis. The average added value and the average labor wage per business unit are compared using Formula 1. If the added value exceeds the wages of workers, the business unit makes a profit (Table 9). The business is declared feasible because the business unit made a profit and all costs were deducted from the production value.

Table 9. Financial and Economic Feasibility Analysis Value-added Approach

No	Tradeable Output	Real Value [1] IDR per lg/season	Shadow Value [2] IDR per ha/season
1.	Value Added (NT)	33,820,555	72.890.150
2.	Labor Wages (UT)	20,800,800	25,656,000
3.	Business Unit Profit	13,019,800	47,234,150
4	NT/UT Ratio	1.6259	2.8411

Source: 1. Primary Data 2. Conversion data.

The value-added analysis, as shown in Table 9, has been proven to be reconstructed as an instrument of financial feasibility analysis (real value) and economic feasibility analysis (shadow value) by comparing the value added with labor wages, and it is proven that the business unit earns a profit. So, it is possible to conclude that value-added analysis can be used to perform financial and economic feasibility analyses.

Figure 2. Application Display

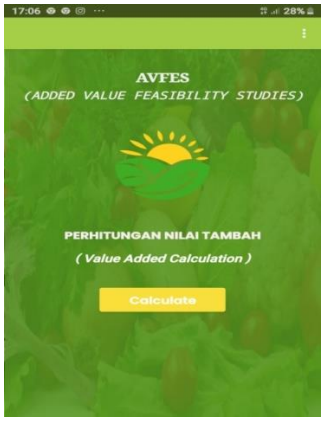

Figure 3. Application Display

Figure 4. Entering data and clicking

Figure 5. Feasibility analysis results

Using added value as a formulation of the financial and economic feasibility study is predicted to be widely employed by entrepreneurs and investors looking to start a new business or expand an existing one. The benefits of financial and economic feasibility studies include lowering or eliminating the risk of company failure and boosting success in starting or developing a business [14] and [15].

The formulation of financial and economic feasibility analyses using the added value technique resulted in the creation of an android-based application that the larger community can use. AVFES is the application's name. The following is how to use the application:

1. Installing applications on android phones;
2. Open the application by clicking on AVFES (Figure 2);
3. Clicking “Calculate” (Figure-3);
4. Inputting data on production quantities, labor wages, marketing margins, producer selling prices, total material costs, and overhead costs (Figure 4);
5. Click "Check Results", you will see the added value (Figure-5) and the recommendation is feasible/not feasible.

Financial Feasibility and Economic Feasibility with B/C Ratio Approach

To prove the correctness of the financial feasibility analysis and economic feasibility analysis formula of the value-added method, the

Gross B/C ratio analysis method, which is commonly used in feasibility analysis, is used to test. The results of the Gross B/C analysis are shown in Table 10. The Gross B/C ratio in the financial analysis is 1.5175, and the Gross B/C ratio in the economic analysis is 1.7619, of which the Gross B/C value is larger than 1.06, assuming that the interest rate credit for each production process is 6%, which means Rajang Kasturi tobacco farming unit is feasible as the profit generated by the business enables the business to grow and expand.

Table 10. Financial and Economic Feasibility Analysis with B/C Ratio Approach

No	*Tradeable Output*	Real Value [1] per lg/season	Shadow Value [2] per ha/season
1	Production Value (Rp)	38,179,055	109,230,800
2	Production Cost (Rp)	25,158,500	61,996,650
3	Gross B/C Ratio	1.5175	1.7619

Source: 1. Primary Data 2. Conversion data.

The gross B/C ratio in the economic analysis is bigger than the gross B/C ratio in the financial analysis, indicating that tobacco farming creates job opportunities, allowing them to make money, as well as fostering economic rotation, which raises regional GDP and improves community welfare [37].

CONCLUSION

Value-added analysis can be reconstructed as a financial and economic feasibility study instrument in a variety of business units, including farming units. The formulation of the financial and economic feasibility analyses is applied in the Android mobile application so that it can be widely used. Using Kasturi tobacco growing in West Lombok Regency as an example, it is demonstrated that farming is feasible to develop because it delivers earnings to farmers who produce it while also creating jobs and absorbing labor. A financial feasibility analysis and/or an economic feasibility analysis should be performed initially if a business or project is proposed.

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