

# Target Costing to Manage Production Cost in Cassava Fermented SMEs Case in “Kembang Madu” Tapay Industry – Indonesia

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## Abstract

The purpose of this research is to study how target costing implementation on managing production cost in cassava fermented industry: “Kembang Madu” tapay, in order to reach the desired profit. The difficulties on managing cost and getting desired profit in “Kembang Madu” tapay was the reason and motivation behind this research. To get all the data that needed in this research, researcher choose to do observation and interviewing the production manager and the owner of “Kembang Madu” tapay. The production cost calculated the company and the alternative production cost calculated by researcher, were analyzed and compared each other to know how good the target costing implementation. The result of this research shows that target costing implementation in “Kembang Madu” tapay was good and fit. Implementation of target costing can raise the profit earned as much as the desired profit. And then, the company can manage the production cost on its product.

Keywords: production cost, profit target, target costing, selling price

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## Introduction

Efforts to outperform competition in the market, cost is an element that must be considered because profit itself is affected by costs. Cost planning in manufacturing companies must be more strategic because as a basis for determining the selling price of products produced by the company (Dahal 2018). The company is expected to compete in the market with the selling price of the product set. is not an easy thing to do in determining the selling price in order to remain competitive. The company's loss in competition is due to the high selling price, but the company's goal to get profits at the expected level also will not be achieved if the selling price of the product is too low.

In determining the selling price, the long-term benefits must also be considered. All expenses or costs used to produce goods must be covered by the product price set, and be able to get the desired profit. But in practice, the amount of costs incurred as a basis in determining the selling price cannot survive in the market. Because the company manager puts the costs first in the production of goods first, then determines the selling price based on the costs incurred. In other words the selling price is determined by the cost. To help the manager, the following is a cost control system with a target costing calculation (Teplická 2015; Jayeola and Onou 2014).

Target costing technique was developed based on two important characteristics, namely market and cost. The first characteristic is that the price cannot be controlled by the market, the price is determined by the market (supply and demand). The second characteristic is that most of the product costs are determined at the design stage. This stage is the most appropriate time to reduce costs, where companies are able to determine what materials will be used in producing goods. Of course, materials with low prices but good quality and in accordance with the criteria. From this, the company is able to determine the desired profit and control the costs that will occur in producing goods in order to create a targeted price (Jayeola and Onou 2014; El-dalabeeh 2016; Pishdad-Bozorgi, P., Moghaddam, E.H. and Karasulu 2013; Al-khasawneh et al. 2019).

Mildawati in Anugerah, Wahyuni, and Mas'ud (2017) conducted a research on a leather tanning company and gloves, the results of her study showed that the application of target costing was very helpful for the business unit, namely by providing insights on how to reduce costs and manage costs in the production process. The implementation of target costing has a positive impact on profit growth in the business unit.

El-dalabeeh (2016) stated an entity that using the target costing method will process product more efficiently. This can be realized after proper cost management by reducing some production cost without reducing the function of the product itself.

The purpose of this study is to implement the target costing of the fermented cassava producer, "Kembang Madu" tapay industry in Jember. Tapay is a product derived from fermented cassava. The tape industry is generally on a micro, small and medium scale. An understanding of the target costing technique is beneficial for these industries to do cost planning. It can provide solutions to the difficulties of the tapay manufacturer in managing production cost and can help increase profits earned by the company.

## Literature Review

In the 4.0 era, modern technology and the rapidly increasing use of the Internet dominate competition model. Customers have become a choice to compare products and services at the same time (Khadka and Akande 2017). The company must have a strategy of optimal entry into the market by competitive features such as price, quality and timing, all of which can be achieved by understanding customers' needs, desires and abilities, as well as knowledge of competitors.

Previous research showed that there are few studies on the application and implementation of target costing to influence market competition to improve sales level of business. Target costing technique had been developed in U.K., Japan and Australia (Okpala 2016; Teplická 2015; Meghabber 2015; Ghafeer et al. 2014). Strategy aims to determine the price of an optimum that contributes to maximizing the current profit.

Target costing is a process of cost management and acquisition planning carried out systematically. Hansen and Mowen (2004: 509) stated calculation of target costing is a method of determining the price of a product or service based on the target price at which customers can buy it. This is also often called as a price-based pricing.

Anugerah et al. (2017) state that the target costing sets the target to help each set in order and arrange so that the product produced is successful in the market and produces the desired profit. Cost effective targets are applied to planning, thus helping management optimize profit planning.

In carrying out this target costing in SMEs (Okpala 2016), there are five main principles that must be carried out:

1. Price determination. Market prices are used to determine the target costs incurred or costs to be taken.
2. Focus on consumers. Consumers, of course, like high quality products, low prices and fast delivery times.
3. Focus on design process and products. By focusing on design process and products, company can control their costs
4. Discuss various functions or fields. A team consisting of various functions or fields that need to be involved in making a product.
5. Participation of the value chain. All parties involved in the value chain, such as suppliers, distributors, and workers must be involved in the process of setting cost targets.

Al-Awawdeh and Al-Sharairi (2012) explored the relationship between target costing and competitiveness at Jordanian Private Universities. Their results showed a significant difference in the strength of links between the dimensions of the target costing technique and the dimensions of strengthening the competitive advantage.

Jayeola and Onou (2014) concluded that there is a statistically significant relationship between target costing and sales and profitability of small and medium scale enterprises in Ogun industrial metropolis. The implementation of target costing technique to business operations had tracked down the cost drivers and led to cost reduction. Their study showed that implementation of target cost technique implementation provides cost goals set for dynamic cost reduction.

## **Research Methods**

### **Types of research**

This research is a qualitative research with descriptive analysis method, which is a research that is compiled with the intention of providing a systematic description of scientific information sourced from the subject or object of research. Manufacturer of “Kembang Madu” tapay as the object of this research. The products from this “Kembang Madu” tapay manufacturer are made from cassava, such as tapay, proll tapay, and shredded tapay (suwar-suwir).

### **Data Types and Sources**

This study uses qualitative data types, namely data obtained from research in oral and written forms such as a general description of the object of research, as well as all information derived from the producer of “Kembang Madu” tapay that is useful for research, not in the form of figures. While quantitative data is data or information obtained from research in the form of figures, such as reports of related costs, financial statements and others.

In this study using primary data sources and secondary data. This study obtained primary data by conducting interviews directly with the owner of the company and the head of production. Not only through interviews, the researchers also made observations related to the production process that is in the “Kembang Madu” tapay manufacturer to support and complete the data needed related to research. The researcher collected secondary data in the form of financial records of “Kembang Madu” tapay producers, archives and documents of research objects related to the research conducted by the researcher.

### **Data Analysis Method**

In this study, the data analysis method used is data collection, data validity testing with data triangulation, data presentation that is accompanied by recommendations and drawing conclusions. interviews, observations, and documentation are carried out for data collection. All interview results are recorded by the researcher objectively according to the interview results obtained from the field. In order to strengthen the data and complete the data related to the research, observations were made. Moleong (2004) explained that the data validity test with data triangulation is an attempt to check the truth of data or information obtained by researchers from various different perspectives by reducing all the differences that arise during data collection and analysis. Data is presented in writing or in words, pictures, graphics and tables. Merging information is intended to be able to provide a picture of the situation, and even provide appropriate recommendations in answering all research problems. After discussion is considered sufficient to provide answers to research questions, a conclusion is drawn.

## **Results and Discussion**

In one week, the company can do several production activities and each product has its own quantity for how many times it must be produced in that one week. The expiry period of the product produced is used on a basis by the manufacturer of “Kembang Madu” tapay to regulate the frequency of production of some of its products. As with prolltapay which has an expiry period of 10 days and shredded tapay that can last for 7 days.

### Production Process and Production Cost of Suwar-Suwir

The shredded products produced by “Kembang Madu” tapay have five flavors, including durian, melon, strawberry, chocolate and original flavors. The steps in making shreds are as follows:

1. Dough making stage  
At this stage the activities carried out in making shreds are mixing cassava tapay and sugar as raw material. In one production shred-shred requires 13 kg of sugar and 17 kg of tapay. Under normal circumstances, the “Kembang Madu” tapay produces up to 20 times a month. This requires 260 kg of sugar and 340 kg of cassava tapay in one month.
2. Cooking stage  
At this cooking stage, special shakes are needed to make shreds. The time needed for this cooking process is three hours, and during the cooking process the dough must always be stirred so that it does not burn. In this process requires two workers who are paid daily. In this process the dough must be cooked very carefully, not until the dough is overcooked. If it is too ripe, then shredded will be difficult to cut and can not be used for consumer products.
3. Cooling stage  
At this cooling stage, the activity carried out is "aerating" the shredded dough mixture by continuing to stir it. This process takes one hour. The addition of ingredients was also carried out at this stage, namely 3 sachets of sweetened condensed milk and half a small bottle of essence for the taste of melon, durian, strawberry and chocolate flavors. Whereas the original shredded only add one sachet of sweetened condensed milk. After being flavored, the dough is placed on a rectangular printed table, flattened and then allowed to stand for two hours.
4. Packaging stage  
Packaging is the last step, in which at this stage the dough which has been allowed to stand for two hours is continued to the cutting process in a predetermined form. After being cut into small pieces, shred-shred wrapped in plastic, then wrapped again in paper packaging, after that it is repackaged using plastic or ½ kg size jars. This product uses four types of packaging. Type 1 packaging uses kite paper with plastic on the outside, Type 2 uses paper similar to candy paper, Type 3 uses shiny paper type with a jar outside, and type 4 packaging uses paper kite with box as the outer packaging. In one package filled with all kinds of shreds.

Components of the production cost of shredded tapay on “Kembang Madu” tapay producers consist of raw material costs, direct labor costs, overhead costs, packaging costs, and shipping costs. Here are the total production cost of each type of packaging:

**Table 1.** Suwar-Suwir Tapay production cost

Type of Packaging	Total Cost
Regular Packaging	Rp420,700
Candy Packaging	Rp572,800
Jar Packaging	Rp524,500
Box Packaging	Rp425,500

Source: processed primary data, 2019

### Production Process and Production Cost of Proll Tapay

There are several stages in making Proll tapay. The first stage is making dough, the second stage is printing, the oven enters the third and final stage, the packaging stage. The following is a detailed sequence of these steps:

1. Making the dough  
At this stage of making the dough, the activities carried out include preparing the ingredients and mixing the ingredients. In one production, making proll tapay requires materials consisting of 10 kg of yellow cassava tapay that has been cleaned middle fiber, 1 kg eggs, 5 kg sugar, 1.2

kg butter, ¼ kg milk powder, 1.2 kg flour, ¼ Kg of ovalets, and ½ kg of rum butter. After all the ingredients are ready, the next step is mixing all the ingredients using a manual mixer. After mixing evenly, the dough must be allowed to stand for 30 minutes so that the mixture rises after it is fermented. In one month, the intensity of proll tapay madu production can reach 4 times the production.

2. Moulding

After the proll tapay dough expands, then the dough is poured into a mold that has been smeared with butter and coated with a thin layer of flour. This process uses large and small sized molds.

3. Ovening

After being placed into the mold, the dough is put into the oven. The process of ovening takes about 1 hour to 1 hour 30 minutes.

4. Packaging

Once in the oven, the proll tapay is topped with garnishes. Based on its size, proll tapay is divided into two types, namely small tapay and large tapay. For every proll tapay recipe, it takes ½ ounce cheese, ½ ounce chocolate messes, and ¼ ounce dried raisins. The bottom of the Proll tapay is coated with oil paper, then put in a box and given a small plastic knife. Proll tapay is ready to be marketed.

**Table 2.** Proll tapay production cost

Type of Packaging	Total Cost
Regular Packaging	Rp420,700
Candy Packaging	Rp572,800

Source: processed primary data, 2019

**Calculation of Target Costing**

The application of target costing on “Kembang Madu” tapay has several stages of the process that must be passed, including: Determination of price targets

1. Determination of expected earnings (profit target)
2. Calculation of the target cost
3. Determination of product and process design through the use of value engineering to identify ways that can reduce product costs
4. Analysis of target costs
5. Production of products consistently in accordance with predetermined targets

Determination of the price target of “Kembang Madu” tapay products is done after comparing prices/benchmarking with its competitors' products. “Kembang Madu” tapay Manufacturer wants a profit target of 25% of the price set. Here is a list of desired prices:

**Table 3.** Product price list

Types of Products	Price
Suwar-Suwir Regular Packaging	Rp. 12.000
Suwar-Suwir Candy Packaging	Rp. 17.000
Suwar-Suwir Jar Packaging	Rp. 15.000
Suwar-Suwir Box Packaging	Rp. 12.000
Proll Tapay Small Packaging	Rp. 17.000
Proll Tapay Big Packaging	Rp. 21.000

Source: processed primary data, 2019.

### Target Costs for Suwar-Suwir and Proll Tapay

After determining the profit target, the target cost can be set after the selling price is reduced by the profit target. In target costing, the fulfillment of profit targets is something that must be done for the successful use of the method. The following details the targeted costs:

**Table 4.** Target costing of “Kembang Madu” tapay

Types of Products	Price
Suwar-Suwir Regular Packaging	Rp. 12.000
Suwar-Suwir Candy Packaging	Rp. 17.000
Suwar-Suwir Jar Packaging	Rp. 15.000
Suwar-Suwir Box Packaging	Rp. 12.000
Proll Tapay Small Packaging	Rp. 17.000
Proll Tapay Big Packaging	Rp. 21.000

Source: processed primary data, 2019.

After the target cost is determined as listed above, the next step is to calculate the production cost in accordance with the target cost that has been set using the target costing tool, namely value engineering.

**Table 5.** Alternative production cost

Types of Products	Price
Suwar-Suwir Regular Packaging	Rp. 394.700
Suwar-Suwir Candy Packaging	Rp. 560.800
Suwar-Suwir Jar Packaging	Rp. 493.700
Suwar-Suwir Box Packaging	Rp. 394.700
Proll Tapay Small Packaging	Rp. 229.885
Proll Tapay Big Packaging	Rp. 236.035

Source: processed primary data, 2019.

### Discussion

Analyze the data that has been obtained and compare how changes in total costs occur. Next is comparing the production cost data of the “Kembang Madu” tapay with alternative costs from writers using the target costing method. Here are the details of the changes:

**Table 6.** Changes in production cost

Types of Products	production cost	Alternative production cost	%
SS Reg. Packaging	Rp420,700	Rp394,700	-6%
SS Candy Packaging	Rp572,800	Rp560,800	-5%
SS Jar Packaging	Rp524,700	Rp493,700	-6%
SS Box Packaging	Rp425,700	Rp394,700	-7%
Proll Small Packaging	Rp256,685	Rp229,885	-10%
Proll Big Packaging	Rp261,935	Rp236,035	-10%

Source: processed primary data, 2019.

There was a significant change between the production cost of the “Kembang Madu” tapay and the production cost that the researchers recommend as an alternative. In this case, the change in raw material components is very important because in order to achieve the cost targets and

profit targets set by the Tapay madu kembang. Researchers try to cut production cost by getting around replacing materials at lower cost components.

Researcher reduces the amount of sugar and granulated sugar in both products because of the amount of sugar and granulated sugar is too much. Reducing the amount of sugar based on the experience of researchers when conducting research on other tapay manufacturers. The amount of sugar in other producers is not as much as the amount used by the Tapay madu kembang. This is what underlies the researchers reduce the amount of sugar. to maintain the quality of the tapay, researchers only reduce the amount of sugar appropriately, in accordance with the allocation of sugar from the data of other tapay producers.

For ordinary suwar suwir packaging tapay products, the total production cost is reduced by 7%, which is Rp. 31,000. For suwar suwir candy packaging products, the total production cost is reduced by 5% at Rp 31,000. For suwar suwir jar products, the total production cost is reduced by 6%, which is Rp. 31,000. For suwar suwir packaging box products, the total production cost was reduced by 7%, namely Rp. 31,000. For small packaged prol tapay products, the total production cost is reduced by 10%, which is Rp. 26,800. For large packaging prol tapay products, the total production cost is reduced by 10% by Rp. 25,900.

## Conclusion

The purpose of this study is to determine the application of target costing on “Kembang Madu” tapay producers in managing production cost and achieving profits. The results show that implementing target costing is very beneficial for “Kembang Madu” tapay producers in terms of managing production cost and increasing company profits.

Comparison between the results of calculations regarding the implementation of target costing with production cost before applying target costing, shows that the application of target costing on “Kembang Madu” tapay can reduce production cost very well, in addition to that profits also increase in accordance with the established targets. By using the target costing method, a profit target of 25% from one product unit can be achieved properly. “Kembang Madu” tapay is also able to save by reducing production cost by 5% or even 10% of the production cost incurred before using the target costing method.

By applying the target costing method, “Kembang Madu” tapay producers are able to reduce their production cost, which will automatically impact profitability. Initially only got a profit of between 15% - 21% of one product unit, but after applying this method, the producer was able to achieve a profit of 25% in accordance with the set targets. This clearly shows that the application of the target costing method has a positive impact on “Kembang Madu” tapay producers.

The success of implementing target costing in reducing production cost on “Kembang Madu” tapay manufacturer can be seen from the data above. “Kembang Madu” tapay is able to manage its production cost carefully and well thanks to the use of the target costing method. The expected profit target of “Kembang Madu” tapay by 25% of the selling price was able to be achieved with use target costing.

To achieve the goal of reducing production cost, implementing target costing is the right thing to do. Previous research showed the successful implementation of target costing in terms of reducing costs and optimizing profit planning. The results of Anugerah et al. (2017) also had a positive impact on the company under study, because in those studies studied how to find product designs and efficient processes for dedicated bandwidth products.

Therefore, the researcher recommends applying the target costing method in managing the production cost of the Tapay madu kembang. From the explanation described above, the researchers hope that this research can provide a solution to the “Kembang Madu” tapay in terms of achieving the set profit targets, and is able to manage production cost appropriately. Besides that, it is hoped that “Kembang Madu” tapay business will be able to develop well and progress further.

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